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# A Social Skills Measure for Adults With Mild or Moderate Mental Retardation: Development of the Measure of Observable Social Skills (MOSS).

Debra Farrar-schneider
*Louisiana State University and Agricultural & Mechanical College*

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# A SOCIAL SKILLS MEASURE FOR ADULTS WITH MILD OR MODERATE MENTAL RETARDATION: DEVELOPMENT OF THE MEASURE OF OBSERVABLE SOCIAL SKILLS (MOSS)

A Dissertation

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Debra Farrar-Schneider
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## ABSTRACT

The literature on the history, definition, etiology, and assessment of social skills in mentally retarded adults was reviewed and the lack of adequate assessment measures was noted. Given the importance of social skills for mentally retarded individuals, especially in the area of community adjustment (e.g., residential and vocational placements), a behavioral checklist to assess these skills was developed. The Measure of Observable Social Skills (MOSS) was derived from reviewing social skills assessment and treatment literature, questionnaires, rating scales, and checklists. Two forms, each containing 47 different items, were developed and completed by caregivers of 212 mild to mentally retarded adults. Psychometric data, including test-retest reliability, split-half reliability, interrater reliability, item-total correlations, coefficient alphas, and percent agreement, were obtained to assess the overall reliability of the scale. Internal consistency and test-retest reliability for both forms were high, while interrater reliability was moderate. In addition, a factor analysis resulted in the emergence of two factors (i.e., basic interpersonal skills, friendliness) and sociometric ratings were adequately correlated with MOSS total scores. Implications for future research on social skills in mentally retarded persons are discussed.

# INTRODUCTION

In recent years, social skills have become an important research foci (Phillips, 1985). Researchers' attention to social skills is most likely due to the potential for widespread applications with various populations (McFall, 1982). In children, correlational studies indicate a relationship between poor peer relations and academic underachievement (Elliott & McKinnie, 1994; Gottlieb, Semmel, Veldman, 1978), school maladjustment (Gronlund & Anderson, 1963; Margalit, 1991), and dropping out of school (Bullock, 1992; Ullman, 1957). Poor social skills have also been related to being labeled as a juvenile delinquent (Freedman, Rosenthal, Donahoe, Schlundt, & McFall, 1978; McCord, Tremblay, Vitaro, & Desmarais-Gervais, 1994; Spence, 1981), exhibiting high levels of physical and verbal aggression (Foster & Ritchey, 1979; Volling, MacKinnon-Lewis, Rabiner, & Baradaran, 1993), and having mental health problems later in life (Bellack & Mueser, 1993; Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Gresham, 1981a). In adults, deficient social skills have been linked to alcohol abuse (Hover & Gaffney, 1991; Miller, Hersen, Eisler, & Hilsman, 1974), drug addiction (Callner & Ross, 1976; Van Hasselt, Hersen, & Millione8, 1978), sexual dysfunction (Lobitz & LoPiccolo, 1972), dating anxiety (Curran, 1977), marital problems (Eisler, Miller, Hersen, & Alford, 1974), unemployment

(Kelly, Laughlin, Clairborne, & Patterson, 1979; Greenspan & Shoultz, 1981), child abuse (Denicola & Sandler, 1980), depression (Bell-Dolan, Reaven, & Peterson, 1993; Lewinsohn, 1974; Libet & Lewinsohn, 1973; Wierzbicki & McCabe, 1988), and mental retardation (Grossman, 1977; Marchetti & Campbell, 1990). Thus, understanding social behavior appears to be a very central issue for psychologists.

The need for examining social skills deficits and excesses with mentally retarded individuals is particularly pressing, as their adjustment in the community may be greatly affected by their level of social competence (Christoff & Kelly, 1983). Recent research suggests that social skills training can enhance the social functioning of mentally retarded individuals, but several gaps exist in the literature (Marchetti & Campbell, 1990). Of particular note is the absence of a standard social skills definition, psychometrically adequate measures to specifically assess interpersonal behavior, and normative data (Marchetti & Campbell, 1990).

The current study was designed to address the lack of a psychometrically sound social skills assessment tool for mentally retarded individuals. A behavioral checklist for mild to moderate mentally retarded adults was developed and the reliability and validity of the checklist were evaluated. In the sections that follow, social skills

assessment is reviewed, including the definitions, history, link to mental retardation, etiological theories, assessment techniques, and normative data. The review focuses on the deficiencies of the current assessment measures, especially those applicable for use with mentally retarded individuals. A brief integrative summary and rationale for the investigation follows the review.

## REVIEW OF LITERATURE

### DEFINITION OF SOCIAL SKILLS

The most difficult issue facing researchers in the area of social skills is the lack of a universally accepted definition of socials skills (Marchetti & Campbell, 1990). "Social skill" has been used to describe a myriad of motor and cognitive behaviors which are assumed to be necessary to perform competently in social situations. In addition, terms, such as social competency, heterosexual social skills, heterosocial skills, assertiveness, and interpersonal skills, have sometimes been used interchangeably with social skill or at other times have been distinguished by idiosyncratic variations (Conger & Conger, 1986). Despite widespread use of the concept, terminology in this area is confusing and inconsistent (Conger & Conger, 1986).

#### Early Definitions

Libet and Lewinsohn (1973) defined social skills as the ability to exhibit responses which are positively or negatively reinforced and refrain from displaying responses which are punished or extinguished. This definition does not adequately describe the intended meaning of social skills, since an inappropriate behavior, such as whining, might be reinforced with attention, but would not be considered a social skill (Curran, 1979). More appropriately, Combs and Slaby (1977) described social

skill as "the ability to interact with others in a given social context in specific ways that are societally acceptable or valued and as they sometimes are personally beneficial, mutually beneficial, or beneficial primarily to others" (p.162). Herbert (1986) characterized social skills as the use of a collection of complex behaviors to accomplish a task.

Liberman, Vaughn, Aitchison, and Falloon (cited by Curran, 1979) expanded the definition of social skills to include cognitive processes, such as perception. They suggested that nonverbal behaviors, which incorporate interpersonal communication, content of conversation, and reciprocity in communication, were components of social skills. According to these authors, receiving, processing, and generating adequate and appropriate responses in each of these domains should be considered. Foster and Ritchey (1979) further extended the scope of social skills by suggesting that the study of social responses should include the context of the behavior (i.e., antecedents, consequences). Social skills were posited by these researchers as behaviors which increase the individual's chances of producing, maintaining, or enhancing behaviors judged by others as adaptive to the situation. They also suggested that social competence could not be established by exclusively looking at the absence of undesirable

responses, because the presence of positive behaviors were necessary, as well.

Rather than narrowing the concept of social skills, these researchers broadened the term to encompass essentially all human behavior (Curran, 1979). Recognizing this, Curran (1979) regarded social skills as a "mega-construct" for integrating diverse behaviors. In an effort to elucidate the concept, Curran (1979) perceived social skills as social response capabilities inferred from overt, motoric behavior, which should not include nonbehavioral constructs. Attempts by other researchers to limit the construct have resulted in a focus on strictly interpersonal skills or interpersonal problem solving skills (Bernstein, 1981; Shure, 1981). Specifically, Andrasik and Matson (1985) proposed that an individual who can easily meet others, converse competently, convey and elicit information, and leave others feeling pleasant after the interaction, possesses good social skills.

Although Curran (1979) and the other researchers tried to confine social skills to observable behaviors, the exact behaviors which comprise social skills are not so easily distinguished. The components encompassed by the construct of social skills have not been empirically identified (Curran, 1979). McFall (1982) attempted to address these definitional problems in existing social skills research by reviewing the two conceptual models in which most

definitions of social skills fit, the trait/molar and molecular models.

Social Skills Models

In the trait/molar model, social skill is regarded as a general, theoretical construct, tendency, or characteristic, such as assertiveness or heterosocial skill (McFall, 1982). The trait model requires an inference on the level of social skills that a person possesses, since it assumes that social skills are not specified or directly observable. This model also presumes that an individual's social skills are stable and consistent across time and conditions. Unfortunately, using this model does not allow one to operationally define or objectively measure social skill, which leads to a circular use of the social skills concept. A person's performance in interpersonal situations is observed and judged to be satisfactory or unsatisfactory. It is hypothesized that the person has satisfactory or unsatisfactory social skills. Finally, it is interpreted that s/he had a satisfactory or unsatisfactory performance because s/he had a satisfactory or unsatisfactory level of social skills (McFall, 1982).

In the molecular model, social skills are described as specific, observable behaviors which collectively comprise an individual's social functioning (McFall, 1982). Thus, social skills are a function of an individual's situation-specific behavior, rather than the individual.

The person does not possess a certain amount of social skills, but behaves more or less skillfully in a certain situation at a particular time. Using this model, social skills are viewed as learned behaviors that can be operationally defined in terms of specific responses to specific situations. However, the molecular model does not specify how to organize the individual's behaviors, and it fails to indicate which responses are considered to be social skills. A parallel problem is encountered in ascertaining the situations in which assessment should take place.

Social Competence vs. Social Skills

McFall (1982) proposed that the definitional problems of social skills could be clarified by making a distinction between social competence and social skills. He stated that competence is "a general evaluative term referring to the quality or adequacy of a person's overall performance in a particular task", whereas, skills are "the specific abilities required to perform competently at a task" (pp.12-13). Using this definition, competence reflects a judgment of whether an individual's performance is adequate based on certain criteria and some amount of consistent performance within a task should be expected. McFall (1982) also suggested that physiological, cognitive, and motor responses be included under the rubric of social skills.

Gresham (1986a) and Gresham and Elliott (1987) conceptualized social competence for children as being comprised of adaptive behavior and social skills. Adaptive behavior would include independent functioning skills, physical development, language development, and academic competencies. Social skills, on the other hand, would include interpersonal behaviors (e.g., accepting authority, conversation skills, cooperative behaviors, play behaviors), self-related behaviors (e.g., expressing feelings, ethical behavior, positive attitude toward self), and task-related behaviors (e.g., attending behavior, completing tasks, following directions, independent work). Like McFall's concept of social competence, this definition of social competence suggests an interdependence among cognitive, adaptive, and social domains.

Recent Definitions

Gresham (1986a, 1986b) identified three general social skills definitions from the literature, each based on the type of assessment method utilized to measure the skills. The peer acceptance definition views social skills in terms of peer acceptance, but makes no effort to describe the particular behaviors that direct acceptance. The behavioral definition simply defines social skills as behaviors that maximize the probability of reinforcement and minimize the likelihood of punishment or extinction in specific contexts. This definition allows the

specification and operationalization of antecedents and consequences of social behaviors, but provides no way of confirming that these social behaviors are socially important. The social validity definition identifies social skills as those behaviors that, within a given situation, predict important social outcomes. This definition is appealing because it designates deficient behaviors which are deemed important based upon their relationships to socially important outcomes (e.g., peer acceptance, parental acceptance, teacher acceptance). This conceptualization is important because it recognizes the interdependence of definition and assessment of social skills.

Recently, Chadsey-Rusch (1992) offered an operational definition of social skills. She delineated social skills as "goal-oriented, rule-governed learned behaviors that are situation-specific and vary according to social context; they involve both observable and unobservable cognitive and affective elements that assist in eliciting positive or neutral responses and avoiding negative responses from others" (p.406). The implication is that social skills are learned, include acceptable and unacceptable behaviors, and are judged by others to be competent or incompetent (Cartledge & Milburn, 1983; Chadsey-Rusch, 1992).

While these recent attempts to comprehensively define social skills are commendable, the concept of social skills

still has not been refined, such that all components can be specified and operationalized (Chadsey-Rusch, 1992). Despite the barrage of definitions that have been proposed, a consensus on the definition of social skills has not been reached (Bellack, 1979b). All these definitions provide a general idea of what social skills are, but the exact skills that constitute social competence have not been empirically determined and remain vague and unclear. Determining whether a skill is appropriate is a complex process, as insufficient or excessive behaviors may be troublesome, while moderate levels of behavior are often considered socially skilled (Matson & Ollendick, 1988).

Summary

Several points emerge from this review. First, social skills may refer to overt behaviors and/or cognitive processes and may be general or specific (Trower, 1979). Most social skills used in treatment studies were observable and could be defined and reliably measured. However, unobservable behaviors are also believed to be used in social interaction, such as perceiving social contexts, choosing behavior to exhibit, and evaluating the competency of the behavior based on feedback from others (Chadsey-Rusch, 1992). Although this problem-solving process is difficult to assess, several researchers are convinced that its inclusion in a social skills model is essential (Chadsey-Rusch, 1992).

Second, researchers generally agree that a socially skilled person is one who can adapt well to his/her environment and avoid conflict with others (Eisenberg & Harris, 1984; Herbert, 1986; Matson & Ollendick, 1988). The importance of social relations, especially peer acceptance, is evident in many of the existing definitions (Eisenberg & Harris, 1984). The typical definition focuses on interpersonal skills (Matson & Ollendick, 1988).

Third, social skills can only be evaluated in regard to the context in which the interaction took place (Chadsey-Rusch, 1992). To say that a person is socially skilled simply means that the person's observed behavior in a certain situation was adaptive and the person would probably behave in a similar manner if presented with the identical situation again. Thus, the person's behavior would probably be considered skillful once again. A behavior defined as adaptive in one context may not be considered so elsewhere. Furthermore, if a behavior resulted in a positive outcome, the likelihood that the behavior will be emitted again in the future increases.

Fourth, although it has been demonstrated that treatments based on social learning principles (e.g., modeling, coaching, reinforcement) can produce changes in social behaviors, the behaviors trained are not necessarily social skills (Gresham, 1986b). Behaviors identified as social skills are usually arbitrarily selected based on

their face validity (Bellack, 1979a; Bellack, 1979b). A related issue is the recognition that social competence is based on the judgments of others, making it subject to error and bias.

Despite "everyone's" inherent ability to identify good and poor social skills, one all inclusive definition of social skills has not been developed (Curran, 1979). Designing treatment strategies to remediate social skills deficits may be premature given that the actual skills which are important have not been reliably defined or assessed. Because the definition of social skills has been so broad and difficult to operationalize, Curran (1979) advocated limiting the construct of social skills to motoric behaviors, rather than cognitive processes, which are essentially social. Defining the behaviors that contribute to social competence is one of the more pressing challenges facing social skills researchers (Conger & Conger, 1986).

## HISTORY OF SOCIAL SKILLS RESEARCH

The study of social skills has a lengthy history. As far back as the 1930s, Jack (cited by Phillips, 1985) observed interactions of 4-year-old children to compare assertive behaviors. An intervention, which did not specifically address assertive behaviors, was implemented with children who were identified as least assertive based on initial observations. During 7 training sessions, these

children were taught to make designs with blocks, assemble a picture puzzle, and present a picture book. Observations after the training sessions indicated significant increases in the assertive behavior of 4 of 5 experimental children. These findings demonstrated that social behaviors were malleable.

Page (cited by Phillips, 1985) extended these findings with 107 preschoolers. The children's performance in play situations was computed to yield a score of dominance. Specific assertion skills were taught to an experimental group, whose post-training scores were higher than those of the controls. In addition, their performance after training remained stable, suggesting that assertive behaviors could be trained and maintained. This study was significant because it demonstrated that specific social behaviors could be directly taught, while the earlier study implemented an indirect treatment that did not precisely target these behaviors.

These two early studies demonstrated the feasibility of teaching social behavior, but large scale methodologically sound studies came much later (Phillips, 1985). The primary reason for the delay in such research was the lack of recognition that social functioning was directly related to psychiatric disorders/difficulties. Traditional psychiatrists viewed social skills deficits as symptoms of disorders, which appeared because the

individual was mentally ill (Christoff & Kelly, 1985). However, as the behavioral movement gained momentum, those beliefs were challenged and research directly targeting social behaviors quickly evolved (Christoff & Kelly, 1985).

Of particular note has been research with schizophrenics, a population long considered one of the most difficult mental health populations to treat. Zigler and Phillips (1961, 1962) made a notable discovery when they demonstrated that the level of social competence in schizophrenic patients admitted to the hospital was directly related to length of stay, recidivism, and posthospitalization adjustment. In fact, the level of social competence prior to hospitalization was a better predictor of adjustment after hospitalization than either the psychiatric diagnosis or type of treatment received.

Hersen and Bellack (1976a) offered one of the first examples of the effectiveness of social skills training for psychiatric patients when they treated schizophrenic inpatients. These researchers increased component behaviors (e.g., eye contact, speech duration, and appropriate smiles) and assertive responses (e.g., increased requests, decreased compliance with unreasonable requests) using instructions, feedback, and modeling. Hersen and Bellack (1976b) also reviewed several studies which demonstrated that trained social behaviors generalized to community settings.

In the 1970s, a movement towards deinstitutionalization was initiated (Christoff & Kelly, 1985). Given the success previously attained with schizophrenics and the need to promote effective skills for community living, social skills training was extended to other populations, such as depressed and mentally handicapped individuals, and effective results were obtained (Hersen, Bellack, & Himmelhoch, 1980; Senatore, Matson, & Kazdin, 1982; Stokes, Baer, & Jackson; 1974; Whitman, Mercurio, & Caponigri, 1970). The success achieved from these initial endeavors led to considerable social skills research with mentally retarded individuals.

## SOCIAL SKILLS AND MENTAL RETARDATION

The link between social behaviors and mental retardation has long been recognized (Marchetti & Campbell, 1990). The earliest conceptualization of mental retardation primarily highlighted a lack of social competence, and the importance of social behaviors for mentally retarded individuals was recognized as far back as the early 1800s (Christoff & Kelly, 1983; Greenspan, 1981). However, as noted above, it was the trend for placement in least restrictive settings that resulted in the focus on social skills training with this population (Christoff & Kelly, 1985).

Another event, which prompted research on the assessment and treatment of social skills deficits in

mentally retarded individuals, was the issuance of a mandate by the American Association on Mental Deficiency (AAMD). This directive dictated the consideration of adaptive behavior, of which social functioning is a component, in diagnosing mental retardation (Grossman, 1973). Since that declaration, a substantial amount of research assessing the relationship between social skills and mental retardation has taken place (Marchetti & Campbell, 1990).

Through this research, mentally retarded individuals have proven to be deficient across a broad spectrum of social behavior, generally exhibiting more problems than those with normal intelligence (Marchetti & Campbell, 1990; Matson, Compton, & Sevin, 1991; Matson, Helsel, Bellack, & Senatore, 1983; Matson & Ollendick, 1988). These individuals frequently display inadequacies in conversational skills, eye contact, appropriate affect, sharing, helping others, voice volume, and assertiveness (Christoff & Kelly, 1983; Matson & Ollendick, 1988). Inappropriate social behavior in mentally retarded individuals is an area of great concern since social skills deficits and excesses affect many areas predictive of successful integration into the community (Christoff & Kelly, 1983; Matson, Helsel, Bellack, & Senatore, 1983; Meyer, Cole, McQuarter, & Reichle, 1990). These areas

include employment, interpersonal relations, and independent living.

Researchers have suggested that individuals with disabilities often lose their jobs due to poor social skills, rather than poor production (Meyer, et al., 1990). Greenspan and Shoultz (1981) studied mentally retarded workers involuntarily terminated from competitive employment and found a connection between social incompetence and work failure. Over half the subjects studied lost their jobs primarily for social reasons (i.e., inept interpersonal behavior, emotionally disturbed behavior, antisocial behavior) rather than inefficient production, health problems, or economic layoffs.

Research also indicates a relationship between social competence and community adjustment, which affects the development of friendships and acceptance of the individual by those without intellectual deficits. Mentally-retarded individuals who live with their families are less likely to develop friendships with their peer group, as their support system is primarily limited to family members (Krauss, Seltzer, & Goodman, 1992). Surveys of individuals who work with mentally-retarded adults illustrate that vocational, social, and personal skills are considered significantly more important for successful community functioning than leisure and academic skills (Lovett & Harris, 1987a). Such

findings exemplify the importance of social behaviors for individuals with mental retardation.

Recognizing this importance, a movement towards including social competence in the definition of mental retardation has emerged (Greenspan, 1981; Gresham, 1986a; Gresham & Elliott, 1987; Senatore, et al., 1982; Siperstein, 1992). Greenspan and Granfield (1992) advocated a definition of mental retardation as a "condition marked by deficits in three broad areas of intelligence: social, practical, and conceptual" (p. 450). This conceptualization is somewhat problematic because it suggests that mental retardation consists of explicit traits, which disregards the influence of environmental variables and does not offer behavioral skills comprising each area. However, these authors proposed that, instead of using traditional methods of classification, deficiencies in social, practical, and conceptual intelligence should be assessed by obtaining information on an individual's past and current functioning to determine the extent of support services required for the individual. Such a proposal demonstrates the critical role that social behaviors play in the adjustment of individuals with mental retardation.

Although considerable research on social skills and mental retardation exists, further study is needed. Outcome literature has repeatedly demonstrated that

mentally retarded subjects, particularly adults in the mild-moderate range of mental retardation, can be taught specific interpersonal behaviors and these behaviors are necessary for functioning in the community (Christoff & Kelly, 1983; Marchetti & Campbell, 1990; Matson, DiLorenzo, & Andrasik, 1983; Matson & Ollendick, 1988; Siperstein, 1992; Wolfolk, Fucci, Gelzayd, & Manz, 1991). However, the exact skills that are valuable and normal in this population have not been identified and a practical method for assessing deficits/excesses, as well as their causes, has not been developed.

## ETIOLOGICAL THEORIES REGARDING SOCIAL SKILLS DEFICITS

Three main etiological theories have been proposed for inadequate social skills performance. One theory is the skills deficit hypothesis, which is based on the premise that inappropriate social behaviors result from an individual's lack of necessary social skills to perform competently in social interactions (Curran, 1979). A related hypothesis suggests an individual may have once possessed the skills, but the skills have deteriorated (Curran, 1979). The poor development or loss of social skills is presumably due to a lack of opportunities to practice social skills. The availability of these opportunities may be affected by factors such as the number of children who live or play nearby or the number of

children with similar interests as the individual (Herbert, 1986).

According to the social learning theory, appropriate social skills are learned via a reciprocal interaction between a child and environmental forces, including parents, peers, and significant others (Bandura, 1977). Behaviors emitted are those which are observed to be successful in others (e.g. modeling) or those which are reinforced when exhibited. Conversely, social skills deficits are the result of unsatisfactory socialization or ineffective learning which increases the likelihood of a poor, rather than effective, social response (Curran, 1979; Herbert, 1986).

A third theory of social difficulties is the interference model, which proposes that specific social skills are present, but may not be performed due to interference from emotional or cognitive factors (Curran, 1979; Herbert, 1986). Such factors include emotional states that arouse anxiety, inadequate perception of social cues, or faulty interpretations of cues resulting from incorrect cognitive assumption or illogical reasoning (Curran, 1979). For example, cognitive limitations such as those seen in individuals with mental retardation purportedly impose a ceiling effect in the acquisition and performance of social skills for those individuals (Marchetti & Campbell, 1990). Additionally, motivational

and personality factors in this population may contribute to this finding (Marchetti & Campbell, 1990). Differential motivational factors, such as wariness, expectation of failure, differential reinforcement hierarchies, anxiety, effects of institutions, and imitative behavior, may affect a mentally retarded individual's behavior.

Gresham and Elliott (1987) incorporated all of these theories when they classified social competence into four categories: skill deficits, performance deficits, self-control skill deficits, and self-control performance deficits. Individuals who do not have the necessary skills to behave in a socially skilled manner or who do not know a critical step in the behavioral sequence are considered to have skills deficits. An individual with performance deficits knows how to execute required behaviors, but does not perform the behaviors at an acceptable level. Individuals who have not acquired or failed to perform a desired skill due to an emotional arousal response are judged to exhibit self-control skill deficits and self-control performance deficits, respectively.

All three etiological theories have merit. Social skills deficits probably result from a combination of these factors. Regardless of the etiological assumption that researchers employ, social skills training usually results in improvements in social functioning. However, Herbert (1986) warns against "cook book" applications of social

skills training without conducting behavioral assessments, because problems may result from numerous causes and applying such a methodology is not likely to be successful. Even so, the assessment of social functioning is not always an easy task given the lack of psychometrically adequate assessment methods.

## ASSESSMENT METHODS OF SOCIAL SKILLS

Accurate assessment of social skills has many implications for researchers. Investigators may be interested in examining relationships between social competence and other psychological variables, evaluating specific social skills of certain individuals, or predicting future social adjustment of individuals (Bellack, 1979b; McFall, 1982). Social skills assessment is based on the assumption that measuring behavior in a particular context will provide information about how that person will behave in identical or similar situations in the future (McFall, 1982). Thus, the assessment of social skills is typically concerned with identifying particular areas of skills deficits, rather than with describing all the individual's social skills (McFall, 1982). Regardless of the objective of the research, most assessment involves three steps, including identification of specific skills required for competent performance in different contexts, measuring these skills in individuals or groups, and using the results to predict, explain, or treat (McFall, 1982).

The first of these steps, identification of social skills, is not a clearly delineated task because little consensus exists on which behaviors units should be measured. Target behaviors are generally selected on the basis of face validity or consensual agreement, rather than systematic analysis (Bellack, 1979a; Bellack, 1979b; Matson, Helsel, Bellack, & Senatore, 1983). Furthermore, behavioral researchers who identify molecular social skills typically focus on different behaviors and develop their own special measure for each research question (McFall, 1982). Even when different investigators focus on similar behavior units, they tend to code them, combine them, or analyze them differently, making it extremely difficult to integrate assessment research (McFall, 1982). These idiosyncratic methods have resulted in numerous coding systems, assessment tasks, and analytic methods, none of which has been identified as superior (McFall, 1982).

Obviously, systematic analysis to determine which elements are most important to interpersonal behavior is needed, but attempts to identify specific behaviors and modalities that constitute social skills have not been fruitful. Quinn, Sherman, Sheldon, Quinn, and Harchik (1992) attempted to evaluate whether nonverbal, specific verbal, or general verbal components of behaviors frequently taught in social skills training (i.e., following instructions, accepting criticism, negotiating to

resolve conflicts) were most important. Actors with or without mental retardation performing these behaviors well or poorly were videotaped. Videotapes were viewed and rated by community judges. Regardless of the social skill, those individuals who displayed the correct use of all components were rated highest, while those who depicted poor performance of all behaviors were given the lowest ratings. These findings were interpreted to suggest that all of the components and social skills studied were equally important.

The second step, measuring social skills, is fraught with difficulties, as well. The reliability and validity of most social skills assessment procedures is poor or uncertain (Bellack, 1979a; Gresham, 1986b; Gresham & Elliott, 1987; Matson, Helsel, Bellack, & Senatore, 1983). No single assessment instrument has been proven adequate for assessing socially skilled behavior in all settings (Christoff & Kelly, 1983; Gresham & Elliott, 1987; Matson & Ollendick, 1988). Each method renders slightly different information and offers its own advantages and disadvantages. Choice of an instrument is usually determined based on the purpose, as well as allotted time and budget, of the assessment (Bellack, 1979a).

Assessment Models

Different methods of developing appropriate measures to comprehensively evaluate social skills have been

suggested. Goldfried and D'Zurilla (1969) proposed steps to assess competence in a behavior-analytic manner. First, all relevant situations in the natural environment should be examined and a sampling of potential responses to each of these situations should be assembled. Second, a judgment of the effectiveness of each of these possible responses should be obtained from significant others. Next, a suitable format to measure these responses should be developed. Ultimately, psychometric properties, including reliability and validity characteristics, should be evaluated. Curran (1979) also advocated the development of measures that possess conventional standards of psychometric tests (e.g., internal consistency, test-retest reliability, correlations with other social skills measures assessing the same attribute, factor and generalizability analyses).

McFall (1982) also suggested that a finite and practical number of essential social skills must be identified to assess competence. He advocated using a criterion-referenced profile format which hierarchically lists tasks or clusters of related items independently of each other. Caregivers or observers would simply indicate whether a discrete behavior is performed or not performed by an individual, rather than rating the behavior on a continuum. Such a measure would be beneficial in identifying specific performance problems, which are often

obscured by total scores. However, this system would make analysis and interpretation laborious and may have a ceiling effect.

Chadsey-Rusch (1992) proposed three areas which must be evaluated when assessing a mentally retarded individuals social skills. First, judgments of significant others about the individual must be obtained to measure how the individual with mental retardation is perceived by others. Second, the social goals and perceptions of the mentally retarded individual should be considered. Finally, the actual performance of the social behaviors should be observed to determine whether behaviors are performed in correct context, at the correct time, with appropriate person(s), in an effective manner.

Despite the models proposed to extensively measure social skills, a standard method of assessing these behaviors has not evolved (Gresham & Elliott, 1987). Researchers recommend using multiple approaches to conduct a comprehensive and representative assessment (Christoff & Kelly, 1983; Gresham & Elliott, 1987; Matson & Ollendick, 1988). Various behavioral methods, such as sociometric measures, in vivo observations, role-play measures, self-report inventories, ratings by others, social validation, and behavioral interviews, have been utilized to evaluate social competence (Conger & Conger, 1986; Gresham & Elliott, 1987; Gresham & Elliott, 1984). An examination of

these techniques shows the advantages and disadvantages of each (See Table 1).

Sociometric Procedures

Perhaps the most popular methods used to assess social competence in normal children are sociometric techniques (Bullock, Ironsmith, & Poteat, 1988; Foster & Ritchey, 1979). These techniques are based on peer judgments. The two most frequently used sociometric procedures are peer nominations and peer ratings (Gresham & Elliott, 1984).

Peer nominations typically involve having individuals select a certain number of peers, usually three to five, according to certain nonbehavioral, positive dimensions (e.g., best friend(s), specially liked peer, most preferred playmate/work partner), which reportedly demonstrate acceptance (Bullock, Ironsmith, & Poteat, 1988; Foster & Ritchey, 1979; Gresham, 1981a; Gresham, 1983; Gresham, 1986a; Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988; McConnell & Odom, 1986). Individuals can also be asked to choose peers on specific nonbehavioral, negative criterion (e.g., least preferred playmate/work partner, least liked peer), which infers rejection (Bullock, et al., 1988; Foster & Ritchey, 1979; Gresham, 1981a; Gresham, 1983; Gresham, 1986a; Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988; McConnell & Odom, 1986). These criterion are considered nonbehavioral because they rely on activities or

## Table 1. Behavioral Methods of Social Skills Assessment.

| ASSESSMENT METHOD | TASK INVOLVED | ADEQUATE RELIABILITY AND VALIDITY | PRACTICAL (IN TERMS OF COST AND TIME) | ASSESSES SPECIFIC BEHAVIORS FOR INTERVENTION |
|---|---|---|---|---|
| **Sociometric procedures** | | | | |
| Peer nominations | individual selects a certain number of peers according to nonbehavioral criteria (e.g., best friends) | Y | N | N |
| Peer-rating scale | individual rates all individuals in a group on nonbehavioral criteria (e.g., how often he/she would like to play with each person) | Y | N | N |
| Peer assessment | individual identifies person(s) who display specific behaviors | DK | N | N |
| **Direct observation** | | | | |
| Analogue (role-play) | individual is presented with a a simulated situation and requested to respond the way s/he typically would | N | Y | Y |
| Naturalistic observation | individual interacts with a confederate in a semi-structured environment, usually without his/her knowledge | DK | Y | Y |
| In vivo observation | individual is observed interacting with non-confederates in natural environment | Y | N | Y |
| **Self-report inventories** | individual evaluates competency of his/her own social behaviors | N | Y | Y |
| **Behavior rating scales** | individual's social behaviors are evaluated by significant other(s) | Y | Y | Y |
| **Social validation methods** | | | | |
| Social comparison | individual's behavior is compared to an appropriate peer group | DK | Y | Y |
| Subjective evaluation | individual's behavior is judged by others, who are experts or have a significant relationship to individual | DK | Y | Y |
| **Behavioral interviews** | interpersonal history and informal data is obtained from individual and/or significant other | DK | Y | Y |

Y = Research suggests yes

N = Research suggests no

DK = Not adequate research to determine this

characteristics, rather than specific behaviors (Gresham & Reschly, 1988). A sociometric score is computed for an individual using the number of nominations the individual receives in each category (Bullock, et al., 1988; Foster & Ritchey, 1979).

Gresham and Stuart (1992) assessed the stability of sociometric scores obtained by the peer nomination technique, in which children nominated three children they liked most and three children they liked least from a class roster. Scores upon which sociometric status classification were based showed only moderate stability over a one-year interval. Furthermore, use of this system yielded high false-positive classification rates, suggesting that investigators using this system may be more likely to identify children who do not need social skills training than to fail to identify children who do need social skills training.

A variation of the peer nomination method used with preschoolers, which may be applicable to older mentally retarded or severely handicapped children, involves mounting pictures of classmates on a poster (Matson & Ollendick, 1988). Each child is presented with the poster and asked to name all of the pictured children. S/he is then asked to point to the children with whom s/he would most like to play, least like to play, etc.

Sociometric nominations have been demonstrated to be adequate on test-retest reliability and to correlate moderately with direct measures of classroom behavior and teacher judgments (Gresham, 1981b; Gresham & Reschly, 1988). These measures also have good predictive validity (Gresham, 1981b). However, reliability and validity data have been collected primarily with preschool and elementary school age children making generalizability to other populations questionable (Bullock, et al., 1988; Foster & Ritchey, 1979). Furthermore, nominations do not provide information on the types of assets or problems exhibited in an individual rendering it virtually useless in planning interventions (Gresham, 1981b; Hughes & Sullivan, 1988). In addition, ethical issues have been raised regarding the use of negative nominations, as it has been assumed that requesting a child to identify disliked peers may serve as a stimulus to increase negative interactions with these children (McConnell & Odom, 1986). Although this assumption has not been borne out in the research, teachers and parents remain hesitant to permit the use of negative nominations (Hayvren & Hymel, 1984; McConnell & Odom, 1986). Finally, peer nominations may be extremely helpful in identifying social dysfunction, but they are often impractical for clinical use because they are time consuming to administer and score.

The peer-rating scale, another prevalent sociometric technique, generally requires an individual to respond to questions, such as how often s/he would like to play with a particular person, about every individual in a group (e.g., classroom) (Bullock, et al., 1988; Foster & Ritchey, 1979; Gresham, 1981b; Gresham, 1983; Gresham, 1986; Gresham & Elliott, 1987; Gresham & Elliott, 1984; Gresham & Reschly, 1988; McConnell & Odom, 1986). Raters are given a class roster or shown a picture of every classmate and asked to rate the classmate using a Likert format (Foster & Ritchey, 1979; Gresham, 1983; McConnell & Odom, 1986). A sociometric score is obtained for each individual by averaging all ratings (Bullock, et al., 1988). Teachers have also completed peer rating scales and these ratings generally concur with peer assessments (Gresham & Elliott, 1984; McConnell & Odom, 1986; Olson & Lifgren, 1988).

Peer-ratings yield higher test-retest reliability than sociometric nominations because all individuals are rated (Asher, Singleton, Tinsley, & Hymel, 1979). This procedure ensures that raters will make a qualitative judgement about each individual rather than depending on the rater's memory (McConnell & Odom, 1986). Peer ratings also appear to be sensitive to changes in the criterion (McConnell & Odom, 1986). However, this approach is time consuming and some children may find it difficult to make discriminations required to complete the measure.

A less commonly used sociometric technique is the peer assessment procedure, which requires individuals to make judgments about peers' specific behaviors rather than his/her feelings towards them (Gresham & Elliott, 1984; McConnell & Odom, 1986). Individuals are asked to nominate or rate peers according to a variety of behavioral descriptions. Several methods of doing this have been generated, including the Guess Who Technique, where the rater guesses who fits a behavioral criteria, and the Bower Class Play Method, in which children are told to choose individuals in their class to fill roles in a class play (Gresham & Elliott, 1984; McConnell & Odom, 1986). Peer assessments have adequate internal consistency and test-retest reliability, but insufficient validity data are available.

Summary of Sociometric Procedures

In summary, sociometric techniques appear to have adequate psychometric properties, possessing especially good predictive validity (Gresham, 1981b). However, the general item content of these measures may render them ineffective in identifying target behaviors for treatment or evaluating treatment change (Gresham, 1981b). In addition, lack of a fixed norm group often makes obtaining nominations and ratings difficult (Matson & Ollendick, 1988). Parents and teachers are often hesitant to allow the use of sociometrics, because they require the children

to be rated and discussed in the presence of others (McConnell & Odom, 1986). Sociometric measures are typically employed with children, but could prove useful with other populations. While nominations and peer-ratings have been the most widely researched sociometric procedures, peer assessments appear to hold promise and warrant additional research attention to evaluate psychometric properties (Gresham, 1986b). The value of sociometric measures under optimal circumstances should not be overlooked. However, given the time expenditures necessary for these procedures, their application will probably be limited to research rather than standard use in clinical practice (Matson & Ollendick, 1988).

Direct Observation

Direct observation is another method employed to assess social skills, which is intended to sample actual behaviors. These observations may take place under analogue, naturalistic, or in vivo conditions (Bellack, 1979a; Bellack, 1979b). Determination of which behaviors should be assessed is unclear, but items typically include a variety of verbal and motor responses and are chosen because they are face valid (Bellack, 1979a; Bellack, 1979b). These procedures have varied widely between studies. Due to greater convenience and environmental control, analogue assessment is more common than

naturalistic observation (Matson, Esveldt-Dawson, & Kazdin, 1983).

Analogue assessment typically takes the form of behavioral role-play, which provides simulated samples of performance presumed to correspond to behaviors the individual displays in naturally occurring situations (Powers & Handleman, 1984). A narrated description of someone addressing the individual in a certain situation is presented via audiotape, videotape, or experimenter, and the subject is requested to respond as s/he "normally" would (Bellack, 1979a; Bellack, 1979b). Identified target behaviors in the subject's responses are rated by a trained judge. Ratings in numerous circumstances are often summed to yield an overall score of social competence (McFall, 1982).

Multiple studies have used role-plays in assessing social skills, but the performance often lacks correspondence with behavior in other settings. Van Hasselt, Hersen, and Bellack (1981) found low correlations between role-play tests and naturalistic observations, sociometric ratings, and teacher ratings. Similarly, Matson, Esveldt-Dawson, and Kazdin, (1983) found that child and teacher measures of popularity, particularly peer nominations and teacher ratings, were correlated, while a behavioral role play test did not significantly correlate with any measure except the child interview. These

findings suggest that role-play tests have questionable construct validity and limited generalizability to the natural environment.

Conversely, Hughes, Boodoo, Alcala, Maggio, Moore, and Villpando (1989) found a role-play test of children's social skill to possess good interrater, test-retest, and internal consistency reliabilities. These researchers also found that role-play tests were more accurate than teacher ratings in identifying neglected children, while teacher ratings were better for classifying rejected children. Millbrook, Farrell, and Curran (1986) developed a coding system, which they used to obtain duration and frequencies of several social and anxiety behaviors from videotapes of psychiatric patients and nonclinical subjects. These behaviors were compared to global ratings of social skills made by trained and untrained raters. Several of the behaviors were correlated with the global ratings, including talk time, silence, directed gaze, mutual gaze, and leg movement. An interesting finding of this study was that, despite differences found in confederate behaviors, these did not appear to have significant effects on subjects' social skills or anxiety.

Another study by Rinn, Priest, Barnhart, and Markle (1986) also suggested that analogue assessment was a valid method of measuring social skills. These researchers obtained children's responses to 17 situations, which were

scored as present/acceptable or not present/unacceptable in several areas. These scores were summed to obtain total score, which they found to correlate significantly with sociometric ratings, presumably establishing the validity of analogue assessment. However, several problems were evident with this study. First, the absence of a behavior provides different information than inadequacy, yet these were lumped together in the scores. Second, the all or none method in which these responses were scored gives little information on the continuum of possible responses. Third, the children were provided with visual prompts depicting various facial expressions to aid in their responses, suggesting at the very least that the children's responses were optimal rather than typical. Finally, as with the majority of social skills projects, the authors gave no basis for the selection of behaviors they scored.

Merluzzi & Biever (1987) provided further evidence for the validity of role-playing procedures to behaviorally assess social skills. These researchers selected low, moderate, and high socially skilled individuals based on standardized surveys. Judges' global ratings of social skills did not significantly differ on structured role-plays, unstructured role-plays, or naturalistic observation. In addition, these ratings differentiated the low, moderate, and high socially skilled groups. Several reasons might account for the difference between these

results and results of earlier studies. First, observations of nonverbal behavior were not conducted in this study. Second, it is questionable how representative the naturalistic observation would be of natural social behaviors, as it took place in a waiting room rather than with people with whom the individuals might normally interact. Typical social behaviors would probably not be assessed around unfamiliar individuals. Finally, the social skills assessed in this study were limited to initiating and maintaining conversations with strangers.

Using videotaped role plays, Sherman, Sheldon, Harchik, Edwards, and Quinn (1992) found moderate correlations between scores obtained from behavioral checklists and evaluations by community judges on whether the performance of the individual participating in role plays was satisfactory. These findings might suggest that behaviors measured in the checklists (e.g., faced the other person, maintained eye contact) are useful skills to teach people who are experiencing difficulty in areas of following instructions, accepting criticism, or negotiation. Further, these researchers found that individuals with mental retardation performed almost as well as normal individuals from the community in the areas of following instructions and accepting criticism, but not in negotiating. Thus, recent studies have suggested that role play assessments might be useful in reliably measuring

an individual's social skills. However, most of the studies have flaws which prevent conclusions about their validity.

While many researchers have developed role play assessments for their particular study, some standardized role-plays have been generated (Barlow, Abel, Blanchard, Bristow, & Young, 1977; Bornstein, Bellack, and Hersen, 1977; Williamson, Moody, Granberry, Lethermon, & Blouin, 1983). A standardized observational rating scale was developed by Barlow, et al. (1977) to study heterosocial skills. The behaviors on this checklist were found to differentiate the socially adequate and socially inadequate males. Behaviors comprising the categories of conversation and affect were most discriminating, and the voice category also differentiated the adequate from the inadequate group.

One of the first standardized lists of role-play scenes for children, developed by Bornstein, et al. (1977), was the Behavioral Assertiveness Test for Children (BAT-C). This assessment battery is comprised of nine interpersonal situations with which children with social skills problems are likely to experience. The BAT-C has been used in a number of studies with single case designs for determining level of deficiency and treatment outcome.

Perhaps the most extensively researched standardized role-play measure is the Social Skills Test for Children (SST-C), constructed by Williamson, Moody, Granberry,

Lethermon, and Blouin (1983). The researchers studied 104 children and established adequate criterion and social validity. A broad variety of social skills scenes were employed, totaling 30. Stages that were followed in the development of the SST-C, including selection of role-play scenes (based on a conversation with child, teacher, and parents), establishment of a procedure for administering the test, and establishing a reliable scoring procedure are recommended in the development of other social skill role play scenes.

Role-play procedures have proven to be useful and have several advantages over naturalistic observations (Gresham & Reschly, 1988). First, behavioral role-plays can assess consequential social behaviors that occur infrequently in the natural environment (Gresham & Reschly, 1988). Second, role-playing is a more convenient, less expensive method of data collection compared to many other social skills assessment methods (Gresham & Reschly, 1988; Hughes & Sullivan, 1988). Finally, behavioral role play allows environmental variables to be controlled, which may aid in assessment of an individual's response to specific stimuli (Gresham & Reschly, 1988; Powers & Handleman, 1984).

Even so, there are problems associated with the use of role-play assessments. Using a total summed role-play score, as many researchers have done, does not correspond to the premise that behavioral role-playing measures are

situation specific (McFall, 1982). Further, appropriate behavior may be easily faked and poor performance may simply be due to lack of motivation (Matson & Ollendick, 1988). Most importantly, several researchers have found that role-play performance did not correlate with overt behavior in other social situations (Bellack, Hersen, Lamparski, 1979).

Another form of direct observation involves observing staged, semi-structured naturalistic interactions and rating a subject's behavior (Bellack, 1979a; Bellack, 1979b). Usually without his/her knowledge, the subject's interactions with a confederate are observed and assigned an overall score based on a judge's subjective rating(s). Based on existing literature, the validity of these procedures is difficult to evaluate, as most scenarios have been arbitrarily developed (Bellack, 1979a). In addition to having the advantages of behavioral role-play tests, the ecological validity of this method is purportedly greater than behavioral role-play tests because the subjects are unaware their behaviors are being evaluated and the interaction is less structured and unnatural (McFall, 1982). However, like the behavioral role-play, use of this technique is based on the assumption that a single score measuring social competence in one situation will generalize across all interpersonal situations in a consistent, predictable manner (McFall, 1982). Such a

premise ignores the context in which social behaviors occur.

In vivo observation is an important technique which allows determination of whether an individual can exhibit appropriate skills with different people, contexts, and times. An individual is observed in naturally occurring situations in the environment, without using confederates or staged events. In vivo observation involves identifying overt behaviors that may be operationally defined, as opposed to constructs (Powers & Handleman, 1984). Classic behaviors which are evaluated include eye contact, voice volume, and positive verbalizations (Bellack, 1979a). Data are usually in the form of frequency counts or duration measures, but may include qualitative measures that furnish precise data about the types of social behaviors exhibited (Gresham, 1983; LaGreca & Stark, 1986). Sequential observation codes also provide different information that may be helpful in conducting a functional analysis (LaGreca & Stark, 1986).

Direct observation has been employed with a variety of populations, including mentally retarded individuals. Wolfolk, Fucci, Gelzayd, and Manz (1991) utilized an observational protocol to measure the social interpersonal skills of 6 mentally impaired adults, judging each behavior as appropriate or inappropriate. Overall, inappropriate behaviors were most often of a verbal nature

(e.g., turn-taking feedback to speaker, turn-taking contingency, cohesion, and varying communicative styles). In fact, only 1 of the 6 subjects exhibited noticeable inappropriate behaviors in nonverbal aspects (e.g., physical proximity, physical contacts, body posture) and none of the subjects exhibited inappropriate behavior in gestures, facial expression, and eye gaze. In addition, investigators concluded that individuals with lower IQ scores (i.e., 25-50) exhibited more inappropriate behavior than subjects with higher IQ scores (i.e., 53-78).

In vivo observation is superior to other assessment measures because it requires a minimum amount of inference, making it the most ecologically valid method of assessing social skills (Foster & Ritchey, 1979; Powers & Handleman, 1984). In addition to the social behaviors of interest, this type of assessment allows antecedents and consequences to be examined to establish functional relationships (Foster & Ritchey, 1979; Gresham & Elliott, 1984; Powers & Handleman, 1984). In vivo observations do not always have high reliability, but reliability can be increased by refining codes and training observers (Powers & Handleman, 1984). Furthermore, these methods are moderately correlated with sociometric measurements and teacher ratings and demonstrate high sensitivity to treatment changes (Gresham, 1983; Gresham & Reschly, 1988).

Problems with in vivo observations include subject reactivity to observers, which can markedly affect the rate and type of responses displayed by the subject (Bellack, 1979a). Observer drift and bias can also create difficulties (Powers & Handleman, 1984). In vivo observation may not allow important social behaviors, which are infrequently exhibited, to be observed (Hughes & Sullivan, 1988). Similar to data obtained via analogue assessment, behaviors chosen for observation are often based on face validity, which does not guarantee that the behavior is crucial to social competence (Bellack, 1979b). In addition, the sample of behavior obtained by direct observation may not be representative of the subject's typical performance, making the reliability and validity of ratings questionable (Bellack, 1979b). The procedure may also be expensive and timely, making it infeasible (Matson & Ollendick, 1988). For these reasons, this form of direct observation has not been widely employed (Matson & Ollendick, 1988).

Summary of Direct Observation Procedures

In sum, direct observation methods, the most common being role-play tests, naturalistic, and in vivo observations, are useful techniques in assessing social competence. Role play assessment is an easy and convenient method of direct observation, which is sensitive to changes in actual behaviors (Matson & Ollendick, 1988).

Nevertheless, given the limited reliability and validity of role-play assessments, this method should never be used alone (Matson & Ollendick, 1988). In vivo observations require low levels of inference and enable functional assessments of social behaviors in the natural environment, but may be impractical due to the time and expense necessary to conduct such observations (LaGreca & Stark, 1986). While staged naturalistic interactions may offer a compromise, many of the problems evident in role-play tests and naturalistic observations are pertinent to this method, as well. All of the direct observation procedures typically include behaviors chosen due to face validity, which have little empirical basis (Bellack, 1979a). In addition, procedures between studies have not been standardized, making it difficult to compare findings (Bellack, 1979a).

Self-Report Inventories

Self-report inventories are other methods of obtaining information about an individual's social behaviors (Bellack, 1979b; Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988; Matson & Ollendick, 1988). These measures require a person to evaluate their own competency in social settings. Responses are most often in the form of true-false/multiple choice answers to self-statements or Likert-type self-ratings of their proficiency in particular social settings. As with other assessment techniques, the

individual is presented with items from common interpersonal situations which are felt to be representative of his/her overall social behaviors.

Many self-report inventories have been developed for adults to assess heterosocial skill and assertiveness (Bellack, 1979b). Self-report measures have been developed to assess social behaviors in children, as well (Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988; Matson & Ollendick, 1988). The two most widely utilized self-report inventories for children are the Children's Assertive Behavior Scale (CABS) and the Matson Evaluation of Social Skills with Youngsters (MESSY).

The CABS is a multiple choice self-report measure, developed by Michelson and Wood (1982), to assess social behaviors in elementary school children. The CABS yields a passive and aggressive score, as well as a total score, by assessing general and specific social skills. Initial findings indicate that the measure possesses satisfactory test-retest reliability and internal consistency. Furthermore, the CABS was found to discriminate between aggressive and assertive behavior tendencies (Scanlon & Ollendick, 1986). However, little validity information is available.

The self-report version of the MESSY requires subjects to rate themselves on a 5 point Likert scale for 62 items assessing a broad range of social behaviors (Matson,

Esveldt-Dawson, & Kazdin, 1983; Matson, Rotatori, & Helsel, 1983). A preliminary investigation revealed adequate psychometric properties (e.g., high test-retest reliability, adequate construct validity) for the MESSY. Like the CABS, the MESSY did not significantly correlate with sociometric status or teacher ratings, suggesting questionable concurrent validity. However, the MESSY did demonstrate a small, but significant, correlation with a structured interview ($r=.28$, $p<.05$). The MESSY may be valuable when conducting social skills assessments and examining their relationship to other variables.

Due to difficulties noted with self-report inventories, they are not used as frequently as other assessment techniques, such as behavioral role-play or ratings (Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988). Overall, self-report measures have not demonstrated adequate reliability or validity data (Bellack, 1979b; Gresham, 1986b; Gresham & Elliott, 1984; Gresham & Reschly, 1988). Self-report responses may be subject to faulty recall or demand characteristics (Bellack, 1979b). Reportedly, subjects might be inclined to report positive, rather than typical, aspects of their behavior using self-report measures (Matson & Ollendick, 1988). However, Nelson, Hayes, Felton, and Jarrett (1985) found that assessment techniques which required subjects to evaluate themselves produced poorer ratings of social skill

than assessment techniques in which experimenters evaluated the subjects. Additionally, disparate interpretations of semi-quantitative terms, such as "frequently" and "occasionally", may result in data that cannot be compared between subjects (Bellack, 1979a; Bellack 1979b; Matson & Ollendick, 1988). Given the limited data to support their use, self-report measures should not be used alone as selection or treatment outcome measures. Even if the above mentioned issues were resolved, self-report formats may not be appropriate for use with young children and severely impaired individuals (Gresham, 1986b; Gresham & Elliott, 1984).

Behavioral Rating Scales

While each social skills assessment method has merit, the only measures that evaluate the impact of an individual's social behaviors on other people are behavioral rating scales/ checklists (Bellack, 1979b). Since social competence can only be determined by someone's judgement, soliciting data from caregivers or significant others has become a popular method of assessing social skills for individuals of all ages (Gresham, Elliott, & Black, 1987; Meyer et al., 1979). Behavioral checklists have been developed to assess interpersonal behaviors or a broad range of adaptive or problematic behaviors, which include a subset of social skills.

Two major adaptive behavior scales, which include components of social competence are the AAMD Adaptive Behavior Scale (ABS) (Nihira, Foster, Shellhaas, & Leland, 1974) and the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984). Both are norm-referenced scales, which contain a substantial number of items measuring social behaviors (Gresham & Elliott, 1987). Nine of the 21 domains of the ABS assess social behaviors (i.e., Language Development, Socialization, Aggressiveness, Antisocial vs. Social Behavior, Rebelliousness, Trustworthiness, Withdrawal vs. Involvement, Appropriateness of Interpersonal Manner, Symptomatic Behavior), while the Vineland has a Socialization domain which contains most of the social behaviors assessed (Gresham & Elliott, 1987). Items assessing social behavior on the Vineland are not as precise as those on the ABS, making it more difficult to identify specific target behaviors for intervention (Gresham & Elliott, 1987). Though both scales look at a number of interpersonal behaviors, the number is limited and often includes self-help skills. Therefore, an assessment of social skills that employs adaptive behavior scales must also include other measures, such as sociometrics or direct observations, to be comprehensive (Gresham & Elliott, 1987).

An example of a general behavior rating scale that includes a "sociable" factor is the Missouri Children's Behavior Checklist (MCBC) (Sines, 1986; Thompson, Jr., & Curry, 1985; Thompson, Jr., Kronenberger, & Curry, 1989). This measure consists of 70 behavioral items that form six scales (i.e., Aggression, Inhibition, Activity Level, Sleep Disturbance, Somatization, Sociability). A parent indicates whether his/her child has exhibited each behavior during the past 6 months. Using the three factor scores (i.e., externalizing, internalizing, sociability), behavior profiles involving social behaviors were generated from this instrument. These profiles included the Low Social Skills behavior profile (reflects an absence of behavior problems but a deficit in social relationship skills) and the Sociable behavior profile (indicates prosocial skills). While this measure demonstrates the importance of social behaviors in assessing overall behaviors, like the adaptive behavior scales, this checklist alone cannot provide a thorough appraisal of social skills.

Several teacher rating scales have been designed specifically to assess the social behaviors of their students (Gresham, 1986b; Gresham, 1981b; Gresham & Elliott, 1984; Gresham & Reschly, 1988; Matson & Ollendick, 1988). One such scale is the Social Behavior Assessment (SBA; Stephens, 1978). The SBA requires the teacher to rate a child's behavior according to the degree

(i.e., acceptable level, less than acceptable level, or never) that he/she exhibits 136 social behaviors. Four broad category scores, including environmental behaviors, interpersonal behaviors, self-related behaviors, and task-related behaviors, can be created. The SBA has been demonstrated to have satisfactory interrater and test-retest reliability and internal consistency, as well as content, criterion-related, and construct validity (Gresham, 1983; Gresham & Elliott, 1984; Gresham & Reschly, 1988). However, the SBA lacks norms, which would aid in selection of subjects for treatment and evaluation of success (Gresham & Reschly, 1988).

Another instrument designed to measure student social behavior is the Social Skills Rating Scales (SSRS), originally developed by Clark, Gresham, and Elliott (1985). Similar to the SBA, 50 of the child's social behaviors are rated by his/her teacher on a 3-point scale (i.e., not true, somewhat/sometimes true, very/often true). Four factor scores (i.e., social imitation, cooperation, peer reinforcement, academic performance) can be obtained from these ratings. The SSRS also includes a social validity dimension on which the teacher is asked to rate the importance of each social skill to success in the classroom. The SSRS possesses adequate reliability and validity, making it psychometrically comparable to the SBA.

However, the SSRS is more practical in terms of length and norms are available.

In addition to school settings, rating scales have been developed to assess social behaviors in sheltered work settings. LaGreca, Stone, & Bell,III (1982) produced the Vocational Problem Behavior Inventory (VPBI) for mentally retarded individuals from a list of problem situations, primarily interpersonal. High ratings on the VPBI were correlated with high ratings on measures of acting-out behavior, conduct problems, and immature behavior, and low ratings of vocational competency. Scores on the VPBI were also predictive of length of employment. This inventory was demonstrated to have adequate interrater and test-retest reliability, as well as predictive and concurrent validity. Based on these findings, the VPBI has potential for assessing interpersonal problems, especially those pertinent to vocational situations. However, generalizability of these findings across other employment settings has not been assessed and, like many other social skills checklists, no normative data are available on this instrument.

Two other social skills rating scales have been utilized with mentally retarded individuals. The Social Performance Survey Schedule (SPSS), originally developed by Lowe and Cautela (1978) as a self-report measure for adults with normal IQ, was adapted for mentally retarded adults

(Matson, Helsel, Bellack, & Senatore, 1983). Ratings by individuals who had worked closely with 22 mentally retarded adults were obtained on 100 items. Unreliable items were eliminated reducing the item pool to 57 items. Using the newly refined measure, a factor analysis was conducted using a large pool of subjects from which four factors emerged (i.e., appropriate social skills, poor communication skills, inappropriate assertion, sociopathic behavior). While this instrument might hold promise for assessing social excesses and deficits of mentally retarded adults, norms have not been generated for this measure. Given that this measure was based on one developed for adults with normal IQ, items relevant to the mentally retarded population may have been excluded.

Meyer, Cole, McQuarter, and Reichle (1990) developed the Assessment of Social Competence (ASC) to measure social competence using a criterion-referenced method, such as the one recommended by McFall (1982). These researchers identified 11 major skill areas of behavior, each of which include 8 levels of increasingly difficult social behaviors. The ASC groups behaviors, including some problematic conduct, according to the presumable function and provides examples of each level. This measure was designed to assess social functioning at all levels of intellectual functioning. The highest level in each function suggests proficiency at an adult level.

Caregivers complete the ASC based on direct observations of the individual. The ASC was found to have good retest and interrater reliability, as well as satisfactory convergent and predictive validity. Cole and Meyer (1991) found the ASC to differentiate social competence of children receiving integrated and segregated educational services.

While the ASC was developed to address several of the issues discussed above, a few matters were disregarded. First, the behaviors were sorted into categories based on opinions of teachers, rather than an empirical basis. Second, the discriminant validity of the ASC was not demonstrated with adults and the percentage of subjects scoring at the highest levels was greater than would be expected, suggesting a ceiling effect. In addition, correlations between overall ratings of performance quality in social, work, and home situations were low considering the high correspondence which has been shown between these variables and social competence in past research. Finally, although this criterion-referenced checklist alleviates some of the problems evident with other assessment modes, it does not address the need for norm-referenced measures which have adequate psychometric properties.

Behavioral rating scales or checklists have many advantages. These measures concentrate on evaluating specific social behaviors rather than general perceptions of an individual's behavior (Gresham & Elliott, 1984).

Most rating scales conform to conventional standards for psychometric tests (Curran, 1979). In fact, behavioral rating scales tend to have higher reliability and validity than other types of social skills assessment measures, having been shown to correlate highly with behavioral observations and sociometric data (Blake & Andrasik, 1986; Budd & Itzkowitz, 1990; Greenwood, Walker, & Hops, 1977; Greenwood, Walker, Todd, & Hops, 1979; Gresham, 1981b; Gresham, 1983; Gresham & Elliott, 1984; Olson and Lifgren, 1988). Additionally, since ratings by significant others are intended to assess behaviors observed over extended periods, temporal stability of this measure is purportedly better (McFall, 1982). Possibly the greatest benefit of caregiver ratings is their efficiency in terms of cost and time (Blake & Andrasik, 1986; Greenwood, Walker, Todd, & Hops, 1979).

Behavioral rating scales are not without limitations, however. Despite the fact that specific behaviors are typically rated in behavioral rating scales, a composite score is often obtained (Bellack, 1979a; Hughes & Sullivan, 1988). Such scores have no meaning or psychometric basis unless a systematic item analysis has demonstrated homogeneity among the items (Bellack, 1979a). Like self-report measures, general ratings such as "often" and "frequently" may be interpreted differently by different raters and the variables that influence the ratings of

significant others cannot be identified or controlled. Another problem with teacher/parent rating scales is their tendency to measure troublesome, rather than socially appropriate, behaviors (Hughes & Sullivan, 1988).

Ratings by significant others may not be totally objective, as they may be highly reactive and subject to bias (Bellack, 1979b). In addition, these inventories may be based on small samples of behavior since informants may only observe behaviors in a limited number of settings (Meyer et al., 1979). However, even if the evaluation is not entirely factual, measuring the perceptions of other is a crucial task because they offer a representation of the individual's social functioning in leisure, educational, and vocational domains.

Other Assessment Methods

Other measures have been infrequently used to assess social skills. The social validation method is an informal procedure which can be used to empirically identify appropriate target behaviors or successful treatment gains (Kazdin & Matson, 1981; Matson & Ollendick, 1988). The two primary practices used to complete these tasks are social comparison and subjective evaluation. Social comparison entails comparing the subject's behaviors to those of an appropriate peer group to establish intervention goals and measure outcomes. Observing the behaviors of individuals who exhibit adequate functioning in social areas allows the

researchers to choose suitable behaviors on an empirical, rather than arbitrary, basis. Relying on the opinions of others who are in a position to judge the subject's behavior, based on their expertise or relationship to the subject, is known as subjective evaluation. However, this method of social validation has some of the same difficulties as other techniques, such as reliability on face validity, lack of interrater reliability, and evaluator bias.

Strain (1983) employed a social validation procedure in a study involving developmentally disabled 3- to 5-year-old children in mainstream classes. Social skills were included or excluded for consideration in a preschool social skills curriculum based on the social status of the handicapped children's nonhandicapped classmates. This approach appears to deal effectively with the lack of empirical basis for selecting appropriate social skills, rather than relying on professional judgement to determine the types of social skills that contribute to effective social interactions.

Behavioral interviews, another method that has not been systematically investigated as a social skills assessment technique, may be a practical mode of obtaining social validity information (Bellack, 1979b). Interpersonal history and informal observational data can be gathered during behavioral interviews (Bellack, 1979b).

Using this information, interviews may be helpful in conducting a functional analysis of social behavior (Gresham & Elliott, 1987). Interviews allow social behaviors to be defined in observable terms, as well as identification of environmental conditions surrounding target behaviors (Gresham & Elliott, 1987). Interviews may also aid in planning observational systems to survey target behaviors (Gresham & Elliott, 1987).

Castles and Glass (1986) developed three measures of social competence for mentally retarded adults, one of which was an interview format. The Social Problem-Solving Test (SPST), designed to assess cognitive abilities, was generated by interviewing mentally retarded adults and professionals working in the field of mental retardation to obtain interpersonal problem situations. A self-report measure and an analogue assessment measure were also produced from this information to assess attitudinal-expectancy variables and motor/performance skills, respectively. The SPST was found to have adequate interrater and test-retest reliabilities, as well as moderate discriminant and content validity. In addition, the SPST scores changed after social skills and/or interpersonal problem solving skills were trained, suggesting it might be a useful pre-post assessment measure for future research. Although additional psychometric data would be necessary before widespread use of this instrument

would be appropriate, this study is one of the few examples describing methodical use of an interview format to obtain data on social behavior in mentally retarded individuals.

Lovett and Harris (1987b) also conducted a study using the interview format with mentally retarded individuals. Forty-eight adults with mild to moderate mental retardation were interviewed to determine what skills they deemed important for successfully living in the community (Lovett & Harris, 1987b). Similar to findings of an earlier study, which examined what skills significant others felt were important for successful community adjustment, vocational and social skills were rated as most important, followed by personal, academic, and leisure skills. These results provide evidence for the validity of the interview procedure. Interviews do not, however, lend themselves to the collection of normative data, an important area that has been overlooked in social skills research.

Social validation and behavioral interviews have been infrequently used in the assessment of social skills, making it difficult to draw conclusions regarding their usefulness in this area. However, they would seem advantageous in collecting functional analysis data in a time effective manner. These techniques appear to be reliable and valid methods of assessment worthy of further study.

Summary of Assessment Research

Each of the existing social skills assessment measures has its own strengths and weaknesses, but all rely on someone's judgments (e.g., self, significant other, researcher). To date, an adequate social skills measure for mentally retarded adults, which would be useful across broad social contexts, has not been developed (Chadsey-Rusch, 1992). The psychometric construction of a standardized device for this purpose is obviously needed (Chadsey-Rush, 1992; Hersen & Bellack, 1976). Such a measure could be used to select target behaviors for intervention, select individuals for training, evaluate treatment outcome, and predict successful performance (Meyer, et al., 1990). The ease and convenience of analogue observations has resulted in a greater volume of social skills research using this method compared to other techniques. However, the reliability and validity of this technique has not been clearly established (Matson & Ollendick, 1988). Forms of direct observation and sociometric procedures are often time consuming and impractical (Matson & Ollendick, 1988). In addition to having questionable reliability and validity, self-report inventories may not be applicable to impaired individuals (Gresham, 1986b; Gresham & Elliott, 1984). Behavioral interviews have rendered favorable results, but may also be inappropriate for low functioning individuals who are

nonverbal (Castles & Glass, 1986; Lovett & Harris, 1987). Behavioral rating scales completed by significant others would appear to be a practical, cost-effective method of evaluating mentally retarded individuals, which would lend itself to psychometric scrutiny and the development of norms (Matson, et al., 1983).

## SOCIAL SKILLS NORMS

Another striking problem in the social skills literature is the lack of data on "normal" social skills. Social competence implies normality rather than deviancy or deficiency, so competence and/or deviancy can only be assessed by comparing an individual's behavior to an appropriate homogeneous reference group (Eisenberg & Harris, 1984; Matson & DiLorenzo, 1985). Normal data are readily available on other constructs, such as IQ and adaptive behavior. Their omission from the current literature is surprising given the amount of attention that social skills has received. Failure to compile normative data affects several areas of social skills research, including selection of subjects and social validation of target behaviors and treatment outcomes.

Currently, subjects are chosen for convenience or inadequate performance in a particular social situation (Curran, 1979). If subjects are selected from an available pool, the least socially skilled subjects from that sample may be considered socially competent by most people in most

settings. Norms would allow subject selection to be based on an empirical, rather than arbitrary, basis. Normative levels of social behavior would allow researchers to select subjects (e.g., 10th percentile, 5th percentile) for social skills training who needed it most (Gresham 1986a).

Determining the social validity of behaviors assessed and treatment changes could also be ascertained by using normative data. Specifying and operationalizing behaviors, as investigators presently do, leads one to believe that these behaviors are necessarily crucial and comprehensive (Curran, 1979). However, this methodology does not appraise the social importance of behaviors, which could be ascertained by comparing the frequencies of particular target behaviors emitted by subjects and nonreferred or socially accepted children. Normative data would also allow evaluation of whether changes in social functioning after treatment are adequate or clinically significant, rather than simply statistically significant (Curran, 1979). Again, without normative data, the direction and degree of modification produced by intervention is judgmentally, rather than empirically, based (Hersen & Bellack, 1976).

Social validation of social behaviors in the mentally retarded population presents unique considerations. The closer an individual's behavior is to the normal mean, the greater his/her chance of being accepted in the community

(Kazdin & Matson, 1981). However, comparing a mentally retarded individual's behaviors to a nonretarded comparison group, as Strain (1983) did, may be unrealistic given the cognitive limitations inherent in mental retardation. Using nonretarded peers might provide an overly stringent criterion for evaluating change (Marchetti & Campbell, 1990). A more desirable alternative would be to compare the individual's behaviors with other mentally retarded individuals who exhibit an adequate level of social competence. Such comparisons are not currently possible, because information on the average social skills for mentally retarded individuals is not available.

The development of normative data for various populations, especially groups with developmental disabilities, are needed. Norms could be constructed for behavioral rating scales, sociometric measures, behavioral role play tests, and naturalistic observations (Gresham, 1986a). The use of such data should not imply that conformity is a goal of treatment (Kazdin & Matson, 1981). Rather, norms should simply provide a criterion by which to judge whether an individual's behavior falls within an acceptable range (Kazdin & Matson, 1981). The development of norms, such as those obtained by the SSRS for school-aged children, would have enormous potential for clarifying social skills research (Clark, Gresham, & Elliott, 1985).

## SUMMARY OF SOCIAL SKILLS RESEARCH

The importance of social competence for personal, vocational, and educational functioning of all individuals has long been recognized, but it has recently become a major focus of research with mentally retarded individuals. This trend occurred for several reasons. First, social incompetence has been recognized as a defining characteristic of mental retardation, making this population a readily available target for research (Greenspan & Granfield, 1992). Second, the movement towards normalized, less restrictive environments has necessitated the development of procedures to enhance community adjustment (Christoff & Kelly, 1983; Matson, Helsel, Bellack, & Senatore, 1983). Finally, the efficacy of social skills training in teaching new prosocial skills to individuals with mental retardation has repeatedly been demonstrated (Matson & Ollendick, 1988).

During the past 25 years, numerous research efforts have been aimed at systematically identifying, assessing, and training social skills. Impediments to these endeavors include the lack of consensus regarding a definition of social skills and the paucity of reliable and valid methods for assessing social skills. Obviously, these difficulties are related, as assessment is made more difficult due to ambiguities in the definition, while identifying critical skills is virtually impossible without adequate assessment

procedures. Clearly, research is needed to determine the most appropriate definition of social skills, identify the most valid and reliable means to measure the perceptions of others in relation to social skills, and develop of normative data.

Defining social skills is an extremely important task, as it influences every aspect of social skills research (Conger & Conger, 1986). The definition of social skill affects what behaviors are measured, how they are measured, the selection of subjects, how data are analyzed, and content and development of training (Meyer et al., 1990). Yet, agreement has not been reached on exactly what behaviors are considered to be social skills (Marchetti & Campbell, 1990; Meyer et al., 1990). Some investigators understand social skills to be motor behaviors involved in social interactions, while others include perceptions, cognitions, and behaviors (Marchetti & Campbell, 1990).

Delineating social skills for mentally retarded individuals can be even more problematic, as the definition has often been extended to include a variety of self-help skills, such as grooming, dressing, toileting, and eating (Andrasik & Matson, 1985; Matson & Ollendick, 1988; Ross & Giampiccolo, 1972). However, inclusion of these skills is not comparable to the social skills definitions that have been used for other populations (Matson & Ollendick, 1988). To maintain consistency with the majority of research, the

term "social skill" should be synonymous with interpersonal skill. Social skills should entail both positive and negative behaviors, while social competence should refer to the level of appropriate skills an individual displays.

As previously mentioned, the actual assessment of behaviors identified as social skills can be extremely difficult because psychometrically adequate techniques are not available. Behavioral assessment of social skills in mentally retarded individuals is even more difficult than with other populations (Matson, Helsel, Bellack, & Senatore, 1983). Sociometric nominations and ratings require extensive time, and research of their use with developmentally disabled individuals is nonexistent. Direct observation may be impractical or stigmatizing, and may not allow for observation of important, intermittent social behaviors. Self-report measures and behavioral interviews have little research support and may not be appropriate for use with severely impaired individuals. Behavioral rating scales may be appropriate, but are essentially undeveloped for mentally retarded individuals. Unobtrusive, easily administered assessment methods are needed to collect significant social data for individuals with mental retardation (Chadsey-Rusch, 1992). A measure which allows for the collection of normative data would be useful, as well (Gresham, 1986a; Marchetti & Campbell, 1990).

## RATIONALE FOR THE PRESENT STUDY

Social/interpersonal skills are extremely important for mentally retarded individuals, as they correlate highly with functioning in less restrictive environments, such as group home, semi-independent living, sheltered workshop, and community vocation placements (Christoff & Kelly, 1983). Social skills are also principal components in positive programming and assessment of these skills is the obvious direction of future research (Chadsey-Rusch, 1992; Siperstein, 1992). Development of structured methods to identify social skills is necessary and will aid in classifying the functional level of mentally retarded individuals.

Behavioral checklists are relatively brief, structured methods, which have proven useful in gathering this information. However, the checklists currently available are not adequate for assessing social skills in mentally retarded adults. Adaptive behavior scales, such as the ABS and the Vineland, and general behavior rating sales, such as the MCBC, assess only a limited number of social behaviors making them less than comprehensive. Teacher rating scales, such as the SBA and SSRS, are useful only for children in educational settings.

Checklists specifically designed to assess social behaviors in mentally retarded adults have limitations, as well. The VPBI has potential in sheltered workshop

settings, but generalizability to other work and residential settings has not been assessed. The ASC, a criterion reference measure developed for developmentally disabled adolescents and adults, evidently has a low ceiling for mentally retarded adults and would not allow for the development of normative data. Although, the SPSS has received positive comments from the field, it was not specifically designed for mentally retarded adults, so relevant items may have been omitted.

Given the high rates of social skills problems evidenced in the mentally retarded population and the important role that social skills play in community adjustment, the development of a behavioral checklist to assess social skills in mentally retarded adults in a variety of settings is warranted. If primary goals for this population (e.g., establishing an acceptable level of behavior, helping individuals live more independently) are to be met, a reliable and valid method of assessing social skills must be developed. Such a scale would aid researchers and practitioners in identifying individuals who have social skills problems, areas in which those individuals need training, and the effects of social skills interventions. The current study was an effort to develop a psychometrically sound instrument that could be employed for these purposes.

In the present study, a social skills measure was developed utilizing items that were considered interpersonal and observable. The measure was administered to caregivers of more than two hundred mildly and moderately mentally retarded adults. Psychometric data, including test-retest reliability, split-half reliability, interrater reliability, item-total correlations, coefficient alphas, and percent agreement, was obtained to assess the overall reliability of the scale. Reliabilities for the scale were expected to range from moderate to high.

Introductory validity studies were also conducted. Construct validity was assessed by subjecting the measure to a preliminary factor analysis, from which one or more theoretically meaningful factors were expected to emerge. In addition, concurrent validity was obtained using a sociometric rating procedure to assess a subsample of subjects. The rank score obtained by these subjects was compared to their total and factor scores on the social skills measure. The rank scores were expected to significantly correlate with the total and/or a factor score, if the measure was assessing behaviors considered to be social skills by caregivers of mildly to moderately mentally retarded individuals.

As suggested earlier, the development of a behavioral checklist would have widespread implications for the assessment and treatment of social skills deficits/excesses

in mentally-retarded individuals. The measure developed in this study will differ from other social skills behavioral checklists in several ways. First, unlike most of the available checklists, this checklist will be specifically designed for mentally retarded individuals. Second, this measure will provide a comprehensive assessment of social behaviors because it includes an exhaustive list of observable social behaviors and could be used in a broad array of settings. Finally, this checklist will allow for the development of normative data.

# METHOD

## SUBJECTS

Two hundred twelve subjects were recruited through sheltered workshops and group home facilities in Indiana to participate in the study. Subjects were between the ages of 18 and 55, with a mean age of 35.3 (SD = 9.9). School-aged and older persons, whose essential skills may differ from persons living and working in the community, were not included in the sample. Subjects were diagnosed with mild or moderate mental retardation in accordance with the criteria established by the American Association on Mental Retardation (1983). Classification was determined by the subject's most recent IQ score and adaptive behavior assessment available in his/her file. Subjects whose IQ scores fell within the standard error of measure of scores suggestive of mild to moderate mental retardation (3 points above 70 or below 35) were included in the sample, if they had adaptive behavior deficits suggestive of mild to moderate mental retardation and/or prior IQ scores that clearly fell within the mild to moderate range of mental retardation. Deaf and blind individuals were excluded from the sample because these disabilities alone may affect social behaviors, which might add to the difficulty of determining "normal" social behaviors for mentally retarded individuals.

The sample consisted of 114 females and 98 males. The majority of subjects were Caucasian, as black, Hispanic, and other minorities comprised only 7.5% of the sample. One hundred thirty-three subjects were labeled as mildly mentally retarded, and the remaining 79 subjects were identified as moderately mentally retarded. The mean IQ score of the sample was 56.5 (SD=10.6). For the subset of subjects (N=36) for whom the Vineland Adaptive Behavior Composite score was available, the mean score was 40.9 (SD=15.0). Demographic data on a variety of variables, including age, sex, race, level of mental retardation, physical disabilities, cause of mental retardation, current living situation, and current day placement are presented in Table 2.

PROCEDURE

The study was conducted in three phases. Phase I consisted of the development of the Measure of Observable Social Skills (MOSS). The psychometric properties of the MOSS were evaluated in Phases II and III. In Phase II, the reliability of the scale was assessed. Phase III involved examining the validity of the scale by looking at the concurrent and construct validity.

Phase I. Development of Assessment Measures.

A social skills instrument for mild and moderate mentally retarded adults, the MOSS, was developed for administration. Initial items for the MOSS were derived by

Table 2. Demographic Data for Subjects (n=212).

| Variable | N | % |
|---|---|---|
| Age | | |
| 18-25 yrs | 49 | 23.1 |
| 26-35 yrs | 65 | 30.7 |
| 36-45 yrs | 57 | 26.9 |
| 46-55 yrs | 41 | 19.3 |
| Sex | | |
| Male | 98 | 46.2 |
| Female | 114 | 53.8 |
| Race | | |
| White | 196 | 92.5 |
| Black | 9 | 4.2 |
| Hispanic | 5 | 2.4 |
| Other | 2 | .9 |
| Level of Mental Retardation | | |
| Mild | 133 | 62.7 |
| Moderate | 79 | 37.3 |
| Mobility | | |
| Ambulatory | 202 | 95.3 |
| Nonambulatory | 10 | 4.7 |
| Communication | | |
| Verbal | 209 | 98.6 |
| Nonverbal | 3 | 1.4 |
| Physical Disabilities | | |
| Visual Impairments | 17 | 8.0 |
| Hearing Impairments | 25 | 11.8 |
| Seizure Disorder | 48 | 22.6 |
| Cerebral Palsy | 31 | 14.6 |
| Other | 4 | 1.9 |
| Cause of Mental Retardation | | |
| Down's Syndrome | 38 | 17.9 |
| Other Chromosomal Aberration | 8 | 3.8 |
| Infection (e.g., encephalitis) | 8 | 3.8 |
| Injury or Head Trauma | 1 | .5 |
| Birth Trauma | 8 | 3.8 |
| Other (e.g., premature birth) | 18 | 8.5 |
| None Known | 131 | 61.8 |

(table con'd.)

| Variable | N | % |
|---|---|---|
| Current Living Situation | | |
| Semi-independent Living | 23 | 10.8 |
| Group Home | 95 | 44.8 |
| Family Home | 64 | 30.2 |
| Medicaid Waiver Home | 4 | 1.9 |
| Other | 26 | 12.3 |
| Current Day Program | | |
| Supported Employment | 17 | 8.0 |
| Sheltered Workshop | 202 | 95.3 |
| School/Classes | 2 | .9 |
| Other | 2 | .9 |
| Receives Regular Medication | 111 | 52.4 |
| Currently on Behavior Plan | 47 | 22.2 |

examining a variety of social skills questionnaires, rating scales, and checklists, as well as reviewing the literature on assessment and treatment of social skills in normal and developmentally disabled populations. A comprehensive list of social behaviors was generated and redundant items were eliminated. Items which were not directly observable by others or which did not describe an interpersonal behavior (i.e., one that may involve or affect another person) were also deleted. This process resulted in an inventory of 107 social behaviors.

The list of 107 behaviors was then reviewed by two individuals, each of whom had a bachelor's degree, supervised workshop or residential direct care staff, and had worked with mentally retarded adults for five years or more. These individuals were asked to read the scale and note any behavior included that they did not consider a social skill and any behavior they considered to be social skill that was excluded. The list was also examined by three psychology graduate students, who are familiar with behavioral observation, to determine whether each behavior was observable and interpersonal. Based on initial evaluations of these five persons, the measure was revised so that the final inventory contained 94 items.

For ease in administration, this inventory was then divided into two forms (A and B), each containing 47 items (See Appendix A). An attempt was made to place similar

items on separate forms, so the forms would be somewhat comparable. The items were then randomly ordered. In an effort to determine the usefulness of the measure with untrained raters, the reading level necessary to understand the instructions and questions was assessed by the Right Writer computer program. This analysis suggested a grade level of 6.94 for MOSS Form A and a grade level of 7.60 for MOSS Form B would be necessary to complete the measure.

Response format for the MOSS was a 5 point Likert-type scale, which has been successfully employed in other social skills rating scales (Lowe & Cautela, 1978; Matson, Rotatori, & Helsel, 1983). Specifically, raters were asked to note how frequently each behavior occurred in the past 6 weeks: never, occasionally, half the time, frequently, or usually. Items 1, 4, 5, 7, 10, 11, 12, 14, 16, 19, 20, 21, 22, 24, 25, 26, 30, 31, 34, 35, 36, 38, 41, 43, 44, 45, and 46 on Form A, and items 1, 2, 6, 7, 8, 9, 10, 13, 16, 17, 18, 20, 21, 22, 23, 24, 27, 29, 34, 35, 36, 37, 38, 43, and 47 on Form B were scored from 1 to 5, where never = 1, occasionally = 2, half the time = 3, frequently = 4, and usually = 5. Items 2, 3, 6, 8, 9, 11, 13, 15, 17, 18, 23, 27, 28, 29, 32, 33, 37, 39, 40, 42, and 47 on Form A, and items 3, 4, 5, 11, 12, 14, 15, 19, 25, 26, 28, 30, 31, 32, 33, 39, 40, 41, 42, 44, 45, and 46 on Form B were reverse scored.

A face sheet and background information form were also developed for completion by the experimenter. The face sheet included information about the rater and the client, including what the rater's relationship was with the subject, how long s/he had known the subject, how much contact s/he has with the subject on a daily basis, what setting that contact took place, the ratio of caretakers to clients in that setting, and how long the subject had been in that setting (See Appendix B). The background information sheet included biographical information (e.g., age, sex, race), testing information (e.g., IQ and adaptive behavior scores), residential and vocational placement, current medical and psychiatric diagnoses, medications, behavioral programming information, and other variables (See Appendix C).

Phase II. Reliability Study.

Prior to participation in the study, informed consent was obtained from the agency/individual serving the client, the subject or subject's guardian if s/he was adjudicated, and the rater(s) who were identified as the subject's primary caretaker(s) in that setting. The consent forms briefly described the purpose of the study and requested voluntary participation (See Appendix D).

Once a client was determined to be eligible for the study (i.e., between the ages of 18 and 55, diagnosis of mild or moderate mental retardation, not deaf or blind), a

background information sheet (including various demographic information) was completed by the primary investigator (author) based on data in the subject's current case files, medical records, psychological evaluations, yearly reviews. A face sheet was then completed via a brief interview with the rater, a direct care staff person who had known the subject for at least six months. Direct care staff are those who interact and care for mentally retarded clients on a daily basis. These staff members are required to have a high school education or equivalent degree.

After the face sheet was completed, instructions were read to the rater and cards with typed rating responses (i.e., never, occasionally, half the time, frequently, and usually) were placed in front of him/her. The primary investigator then read each item on the first MOSS form administered and recorded the rater's response by circling the appropriate answer on the form. The rater was then offered a 10-minute break before completion of the next form, however, all raters indicated they would like to continue with the assessment rather than take a break. The second MOSS form was then administered by the same method as the first. Forms A and B were counterbalanced, so that Form A was presented first for half of the administrations, and Form B was presented first for half of the administrations. The primary investigator answered questions, when necessary, and recorded the questions and

answers to ensure consistency if/when the question was asked again by another rater. After the rater had completed both MOSS forms for the subject, s/he was thanked for her/his participation in the study. A total of 53 raters participated in the study.

Interrater Reliability. A second rater, also a direct care staff person, completed MOSS Forms A and B for 50 subjects. These ratings were completed in the same manner and on the same day as the original ratings. This second rating was collected for the first 50 subjects for whom a second rater was available. A Pearson Product-Moment Correlation coefficient was computed for the total scores to evaluate the interrater reliability of MOSS scores. To assess agreement between raters, percent agreement and Spearman rank order correlation coefficients were obtained for each item, as well. This correlation was chosen because it assumes the data are ordinal, such as rank-ordered variables like those obtained by the Likert-scale format (Pagano, 1994).

Test-Retest Reliability. MOSS Forms A and B were readministered to the original informants for 50 subjects two to three weeks after initial ratings. The first 50 subjects whose raters were accessible were used for this portion of the study. Test-retest reliability was calculated for the total scores using the Pearson Product-Moment Correlation to ascertain the stability of the rater.

To measure agreement between ratings, percent agreement and Spearman rank order correlation coefficients were also obtained for each item.

Internal Consistency. Coefficient alphas and item-total correlations were calculated for original ratings (N=212) to assess internal consistency. Items with an item-total correlation less than .3 were deleted.

Split-Half Reliability. To determine consistency with regard to content sampling, split-half reliability was obtained for MOSS Forms A and B, as well as for both forms combined. This task was performed by finding the scores on the odd and even items of the test and computing the split half reliability with the Spearman Brown correction.

Phase III. Validity Study.

The MOSS Form A and MOSS Form B were subjected to a factor analysis to assess construct validity. A principal axis factor analysis was utilized. This procedure is the most commonly used method of factor analysis because it is easily interpreted and accounts for as much variance as possible in the data (Kim & Mueller, 1978b). Initial factors were extracted via principal components analysis by applying the Scree-test. The Scree-test is a method in which the graph of eigenvalues (i.e., mathematical values which are used as measures of variance accounted for by a given dimension) are examined and factoring stops at the point where eigenvalues begin to level off forming a

straight line with an almost horizontal slope (Kim & Mueller, 1978b). The Scree test has been considered superior to other factor extraction methods in locating only major common factors (1978b). Furthermore, items with factor loadings of less than .40 on the initial factors were eliminated. The resulting items were subjected to a common factor principal axis analysis with varimax rotation, which assumes factors are orthogonal (i.e., uncorrelated). Kim & Mueller (1978a, 1978b) advocate the used of varimax rotation for exploratory analyses to simplify interpretation. Using a simple structure criterion, items which loaded on more than one factor were retained only on the factor for which the item had the highest factor loading.

To assess concurrent validity of the MOSS, a subsample of subjects (n=39) from three agencies were assessed using a sociometric rating procedure. These subjects were selected because they were employed/resided at an agency in which an individual who was familiar with the skills of all subjects at that agency, other than the rater(s) completing the MOSS, was available to perform sociometric ratings. These individuals were Qualified Mental Retardation Professionals (QMRPs), who possessed a bachelor's degree and at least one year of experience in the field of mental retardation. The individual completing the sociometric ratings was given a stack of 3 x 5 notecards, each

containing the name of a subject within that agency who was participating in the study. S/he was asked to rank order the subjects from most to least socially skilled based on her/his definition of social skills. The rank score (i.e., 1, 2,...N) was compared to the subjects total scores and factor scores on MOSS Form A, Form B, and Forms A and B combined using Spearman rank-order correlation coefficients.

# RESULTS

## RELIABILITY OF THE MOSS

### Internal Consistency

To assess the internal consistency of the MOSS, item-total correlations were calculated. The purpose of these correlations was to evaluate the strength of the relationship between each item rating and the total score, which indicates whether some ratings made more significant contributions than others and, thus, were more important in deriving the MOSS total scores. Item-total correlations are presented in Tables 3 and 4. On Form A, item-total correlations for all items were found to be in the adequate to moderate range ($r$'s ranged from .30 to .65), except for five items that had low item-total correlations (i.e., $r$ values less than 30). On Form B, item-total correlations ranged from adequate to high ($r$'s ranged from .31 to .72), except for three items that had low item-total correlations. Items that had item-total correlations less than .30 were dropped from the scale and further analyses.

The internal consistency of the MOSS was also evaluated using coefficient alpha and split-half reliability, as suggested by Anastasi (1988) and Nunnally (1978). Derived alpha values were very high for all of the MOSS scales. The values were .92 for Form A, .93 for Form B, and .96 for Forms A and B combined. The split-half reliability was also very high. Derived values were .90

Table 3. Item-Total Correlations Between MOSS Form A Items and Total Score.

| Item | and Content | Item-total Correlation |
|---|---|---|
| 1 | Terminates social interactions | .50 |
| 2 | Does mean things to people | .60 |
| 3 | Talks about the same topics | .40 |
| 4 | Has acceptable appearance/hygiene | .45 |
| 5 | Asks permission to join activities | .61 |
| 6 | Cries without apparent reason | .37 |
| 7 | Gives gifts on special occasions | .35 |
| 8 | Solicits money, food, or other items | .38 |
| 9 | Talks continuously | .30 |
| 10 | Returns borrowed property | .52 |
| 11 | Pouts/sulks when doesn't get way | .63 |
| 12 | Is friendly to peers | .65 |
| 13 | Touches others inappropriately | .40 |
| 14 | Verbally communicates | .29* |
| 15 | Makes negative statements about self | .45 |
| 16 | Demonstrates good manners | .60 |
| 17 | Spends time alone, isolated | .40 |
| 18 | Argues with others | .59 |
| 19 | Positively stands up for self/friends | .45 |
| 20 | Refers to familiar people by name | .21* |
| 21 | Communicates with gestures/signs | .28* |
| 22 | Listens when others are speaking | .63 |

(table con'd.)

| Item and Content | | Item-total Correlation |
|---|---|---|
| 23 | Bosses/tells others what to do | .42 |
| 24 | Introduces self/others | .45 |
| 25 | Appropriately accepts compliments | .56 |
| 26 | Keeps confidences/secrets | .54 |
| 27 | Brags/boasts about self | .41 |
| 28 | Is late/absent for appointments | .37 |
| 29 | Flinches/moves away when touched | .24* |
| 30 | Smiles & laughs at appropriate times | .61 |
| 31 | Complies with transition requests | .60 |
| 32 | Becomes angry with little provocation | .63 |
| 33 | Tattles | .53 |
| 34 | Makes relevant comments | .58 |
| 35 | Expresses empathy | .59 |
| 36 | Speaking volume is appropriate | .38 |
| 37 | Insults/says nasty things | .64 |
| 38 | Requests/accepts help | .50 |
| 39 | Stares at others | .42 |
| 40 | Performs strange behaviors | .45 |
| 41 | Takes turns with others | .60 |
| 42 | Swears/curses | .41 |
| 43 | Engages in small talk | .49 |
| 44 | Remains calm/walks away from conflict | .55 |
| 45 | Invites others to join activities | .55 |

(table con'd.)

| Item and Content | | Item-total Correlation |
|---|---|---|
| 46 | Reciprocates | .56 |
| 47 | Exhibits inappropriate sexual behavior | .22* |

Note: *These items were eliminated from the scale.

Table 4. Item-Total Correlations Between MOSS Form B Items and Total Score.

| Item | and Content | Item-total Correlation |
|---|---|---|
| 1 | Praises/gives compliments | .52 |
| 2 | Indicates preferences | .28* |
| 3 | Says unpleasant things | .47 |
| 4 | Says things that embarrass others | .59 |
| 5 | Annoys/disturbs others with noises | .47 |
| 6 | Accepts criticism appropriately | .60 |
| 7 | Tells jokes | .24* |
| 8 | Participates in group activities | .37 |
| 9 | Greets others appropriately | .48 |
| 10 | Invites friend(s) to visit | .33 |
| 11 | Damages/destroys others' property | .46 |
| 12 | Harms self in presence of others | .32 |
| 13 | Negotiates to resolve conflicts | .55 |
| 14 | Repeats certain words/phrases | .40 |
| 15 | Is easily distracted | .37 |
| 16 | Remains calm & congratulates winner | .63 |
| 17 | Follows facility rules | .60 |
| 18 | Speaks clearly | .34 |
| 19 | Gripes, whines, or complains | .61 |
| 20 | Looks at/makes eye contact | .41 |
| 21 | Is friendly to different people | .55 |
| 22 | Cooperates/works easily with others | .75 |

(table con'd)

| Item and Content | | Item-total Correlation |
|---|---|---|
| 23 | Is polite & uses social amenities | .67 |
| 24 | Cleans up after self | .51 |
| 25 | Verbally threatens others | .60 |
| 26 | Ridicules, teases, or makes fun | .51 |
| 27 | Offers/gives assistance to others | .50 |
| 28 | Takes things without permission | .51 |
| 29 | Initiates conversations | .31 |
| 30 | Lies | .54 |
| 31 | Behaves aggressively | .56 |
| 32 | Behavior is unpredictable | .65 |
| 33 | Yells/screams | .55 |
| 34 | Complies with requests | .72 |
| 35 | Sits/stands appropriate distance | .45 |
| 36 | Shows appropriate physical affection | .51 |
| 37 | Share possessions with peers | .54 |
| 38 | Speaks at appropriate rate | .33 |
| 39 | Fidgets/squirms | .47 |
| 40 | Makes unreasonable requests/demands | .58 |
| 41 | Blames others for problems | .64 |
| 42 | Allows others to take advantage of him/her | .16* |
| 43 | Apologizes for mistakes | .56 |
| 44 | Frowns, scowls, or grimaces at others | .49 |
| 45 | Seeks unnecessary attention/help | .49 |

(table con'd)

| Item and Content | Item-total Correlation |
|---|---|
| 46 Interrupts others | .58 |
| 47 Accurately & promptly completes tasks | .57 |

Note: *These items were eliminated from the scale.

for Form A, .94 for Form B, and .95 for Forms A and B combined.

Interrater Reliability

The interrater reliability of the MOSS was evaluated using Pearson product-moment correlation coefficients. Moderate correlations were found between raters for the total scores on Forms A ($r$ = .52) and B ($r$ = .63). The utility of the MOSS in assisting raters in making consistent social skills ratings was evaluated using percent agreement and Spearman's rank order correlation coefficients (See Table 5). Percent agreement ranged from 23.5 to 76.4% on Form A and from 31.3 to 86.3% on Form B. Spearman rank order correlation coefficients ranged from .06 to .64 on Form A and from .08 to .71 on Form B, suggesting inadequate to moderate interrater consistency on items.

Test-Retest Reliability

The test-retest reliability was also measured to determine the stability of the ratings using Pearson product-moment correlations. High test-retest reliability was obtained for both Form A ($r$ = .89) and Form B ($r$ = .90). The test-retest reliability of the individual ratings of the MOSS was further evaluated as summarized in Table 6. The stability of MOSS social skills ratings over a two to three week period of time was assessed using percent agreement and Spearman's rank order correlation

Table 5. Comparison of Percent Agreement and Spearman Rank-Order Correlation Coefficient for MOSS Ratings Made by Two Independent Raters.

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Form A | | |
| Terminates social interactions | 60.8 | .36 |
| Does mean things to people | 68.6 | .53 |
| Talks about the same topics | 41.2 | .52 |
| Has acceptable appearance/hygiene | 51.0 | .42 |
| Asks permission to join activities | 37.3 | .40 |
| Cries without apparent reason | 76.4 | .60 |
| Gives gifts on special occasions | 39.3 | .49 |
| Solicits money, food, or other items | 56.9 | .19 |
| Talks continuously | 41.2 | .50 |
| Returns borrowed property | 56.9 | .31 |
| Pouts/sulks when doesn't get way | 39.2 | .48 |
| Is friendly to peers | 54.9 | .44 |
| Touches others inappropriately | 70.6 | .52 |
| Makes negative statements about self | 58.9 | .45 |
| Demonstrates good manners | 54.9 | .42 |
| Spends time alone, isolated | 47.1 | .61 |
| Argues with others | 55.0 | .54 |
| Positively stands up for self/friends | 41.0 | .51 |
| Listens when others are speaking | 41.2 | .10 |
| Bosses/tells others what to do | 43.2 | .42 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Introduces self/others | 43.2 | .47 |
| Appropriately accepts compliments | 47.0 | .34 |
| Keeps confidences/secrets | 23.5 | .17 |
| Brags/boasts about self | 41.2 | .11 |
| Is late/absent for appointments | 58.8 | .30 |
| Smiles & laughs at appropriate times | 53.0 | .23 |
| Complies with transition requests | 58.8 | .41 |
| Becomes angry with little provocation | 43.2 | .35 |
| Tattles | 31.4 | .35 |
| Makes relevant comments | 41.2 | .19 |
| Expresses empathy | 39.3 | .36 |
| Speaking volume is appropriate | 49.0 | .23 |
| Insults/says nasty things | 60.9 | .50 |
| Requests/accepts help | 57.0 | .44 |
| Stares at others | 37.3 | .06 |
| Performs strange behaviors | 60.8 | .50 |
| Takes turns with others | 33.3 | .21 |
| Swears/curses | 60.8 | .64 |
| Engages in small talk | 37.2 | .32 |
| Remains calm/walks away from conflict | 29.5 | .28 |
| Invites others to join activities | 33.3 | .47 |
| Reciprocates | 33.4 | .31 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Form B | | |
| Praises/gives compliments | 39.3 | .52 |
| Says unpleasant things | 35.3 | .08 |
| Says things that embarrass others | 58.8 | .23 |
| Annoys/disturbs others with noises | 56.9 | .40 |
| Accepts criticism appropriately | 31.4 | .46 |
| Participates in group activities | 56.8 | .35 |
| Greets others appropriately | 60.8 | .43 |
| Invites friend(s) to visit | 50.9 | .67 |
| Damages/destroys others' property | 86.3 | .85 |
| Harms self in presence of others | 82.4 | .43 |
| Negotiates to resolve conflicts | 37.4 | .62 |
| Repeats certain words/phrases | 43.2 | .12 |
| Is easily distracted | 35.3 | .38 |
| Remains calm & congratulates winner | 37.2 | .35 |
| Follows facility rules | 70.5 | .32 |
| Speaks clearly | 56.9 | .65 |
| Gripes, whines, or complains | 39.2 | .27 |
| Looks at/makes eye contact | 45.2 | .13 |
| Is friendly to different people | 55.0 | .02 |
| Cooperates/works easily with others | 41.1 | .28 |
| Is polite & uses social amenities | 49.0 | .43 |
| Cleans up after self | 55.0 | .57 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Verbally threatens others | 51.0 | .45 |
| Ridicules, teases, or makes fun | 58.8 | .50 |
| Offers/gives assistance to others | 31.3 | .34 |
| Takes things without permission | 72.6 | .49 |
| Initiates conversations | 54.9 | .61 |
| Lies | 51.0 | .56 |
| Behaves aggressively | 76.5 | .71 |
| Behavior is unpredictable | 37.3 | .47 |
| Yells/screams | 58.8 | .59 |
| Complies with requests | 49.0 | .37 |
| Sits/stands appropriate distance | 49.0 | .23 |
| Shows appropriate physical affection | 39.3 | .45 |
| Shares possessions with peers | 31.4 | .36 |
| Speaks at appropriate rate | 33.3 | .26 |
| Fidgets/squirms | 33.4 | .17 |
| Makes unreasonable requests/demands | 58.9 | .35 |
| Blames others for problems | 45.2 | .39 |
| Apologizes for mistakes | 33.3 | .34 |
| Frowns, scowls, or grimaces at others | 39.2 | .36 |
| Seeks unnecessary attention/help | 39.2 | .20 |
| Interrupts others | 37.4 | .27 |
| Accurately & promptly completes tasks | 37.2 | .34 |

Table 6. Comparison of Percent Agreement and Spearman Rank-Order Correlation Coefficient for MOSS Original Ratings and Test-Retest Ratings.

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Form A | | |
| Terminates social interactions | 68.0 | .53 |
| Does mean things to people | 76.0 | .69 |
| Talks about the same topics | 56.0 | .84 |
| Has acceptable appearance/hygiene | 68.0 | .52 |
| Asks permission to join activities | 44.0 | .42 |
| Cries without apparent reason | 84.0 | .84 |
| Gives gifts on special occasions | 72.0 | .81 |
| Solicits money, food, or other items | 72.0 | .69 |
| Talks continuously | 60.0 | .80 |
| Returns borrowed property | 66.0 | .64 |
| Pouts/sulks when doesn't get way | 58.0 | .71 |
| Is friendly to peers | 70.0 | .75 |
| Touches others inappropriately | 64.0 | .68 |
| Makes negative statements about self | 70.0 | .76 |
| Demonstrates good manners | 70.0 | .76 |
| Spends time alone, isolated | 60.0 | .81 |
| Argues with others | 50.0 | .65 |
| Positively stands up for self/friends | 54.0 | .58 |
| Listens when others are speaking | 52.0 | .47 |
| Bosses/tells others what to do | 64.0 | .66 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Introduces self/others | 50.0 | .64 |
| Appropriately accepts compliments | 64.0 | .58 |
| Keeps confidences/secrets | 34.0 | .59 |
| Brags/boasts about self | 66.0 | .70 |
| Is late/absent for appointments | 56.0 | .56 |
| Smiles & laughs at appropriate times | 62.0 | .44 |
| Complies with transition requests | 50.0 | .31 |
| Becomes angry with little provocation | 62.0 | .77 |
| Tattles | 76.0 | .87 |
| Makes relevant comments | 62.0 | .66 |
| Expresses empathy | 56.0 | .76 |
| Speaking volume is appropriate | 54.0 | .70 |
| Insults/says nasty things | 70.0 | .64 |
| Requests/accepts help | 58.0 | .36 |
| Stares at others | 64.0 | .69 |
| Performs strange behaviors | 70.0 | .72 |
| Takes turns with others | 66.0 | .62 |
| Swears/curses | 70.0 | .81 |
| Engages in small talk | 66.0 | .79 |
| Remains calm/walks away from conflict | 42.0 | .68 |
| Invites others to join activities | 38.0 | .64 |
| Reciprocates | 48.0 | .72 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Form B | | |
| Praises/gives compliments | 60.0 | .84 |
| Says unpleasant things | 52.0 | .45 |
| Says things that embarrass others | 64.0 | .66 |
| Annoys/disturbs others with noises | 62.0 | .58 |
| Accepts criticism appropriately | 54.0 | .69 |
| Participates in group activities | 60.0 | .53 |
| Greets others appropriately | 66.0 | .68 |
| Invites friend(s) to visit | 62.0 | .75 |
| Damages/destroys others' property | 92.0 | .87 |
| Harms self in presence of others | 82.0 | .91 |
| Negotiates to resolve conflicts | 48.0 | .60 |
| Repeats certain words/phrases | 62.0 | .68 |
| Is easily distracted | 52.0 | .61 |
| Remains calm & congratulates winner | 42.0 | .43 |
| Follows facility rules | 72.0 | .56 |
| Speaks clearly | 66.0 | .80 |
| Gripes, whines, or complains | 64.0 | .79 |
| Looks at/makes eye contact | 54.0 | .44 |
| Is friendly to different people | 68.0 | .55 |
| Cooperates/works easily with others | 62.0 | .55 |
| Is polite & uses social amenities | 56.0 | .71 |
| Cleans up after self | 60.0 | .69 |

(table con'd.)

| MOSS Ratings | % Agreement | R |
|---|---|---|
| Verbally threatens others | 62.0 | .62 |
| Ridicules, teases, or makes fun | 66.0 | .78 |
| Offers/gives assistance to others | 48.0 | .62 |
| Takes things without permission | 74.0 | .61 |
| Initiates conversations | 56.0 | .67 |
| Lies | 70.0 | .85 |
| Behaves aggressively | 86.0 | .92 |
| Behavior is unpredictable | 64.0 | .79 |
| Yells/screams | 70.0 | .70 |
| Complies with requests | 66.0 | .68 |
| Sits/stands appropriate distance | 70.0 | .63 |
| Shows appropriate physical affection | 68.0 | .54 |
| Shares possessions with peers | 68.0 | .65 |
| Speaks at appropriate rate | 58.0 | .74 |
| Fidgets/squirms | 52.0 | .55 |
| Makes unreasonable requests/demands | 66.0 | .63 |
| Blames others for problems | 58.0 | .73 |
| Apologizes for mistakes | 52.0 | .67 |
| Frowns, scowls, or grimaces at others | 42.0 | .52 |
| Seeks unnecessary attention/help | 64.0 | .76 |
| Interrupts others | 52.0 | .57 |
| Accurately & promptly completes tasks | 54.0 | .59 |

coefficients. Percent agreement ranged from 34.0 to 84.0% on Form A and from 42.0 to 92.0% on Form B.

Spearman rank order correlation coefficients were adequate to high for items on both Forms A (.31 to .87) and B (.43 to .92).

FACTOR ANALYSIS

An exploratory factor analysis was conducted to provide a preliminary assessment of construct validity, as recommended by Crocker and Algina (1986). The purpose of an exploratory factor analysis is to determine the minimum number of hypothetical factors that can account for the observed covariation (Kim & Mueller, 1978a). The MOSS Form A and MOSS Form B were subjected to a principal axis analysis. Two factors were extracted by applying the Scree-test. Items that did not load .40 or greater in the initial analysis were eliminated. As a result, 10 items from Form A and 7 items from Form B were deleted. The remaining items were subjected to a principal axis analysis with varimax rotation. This solution accounted for 40.5% of the total variance in Form A and 40.2% of the total variance in Form B. Tables 7 and 8 provide the item composition, factor loadings, eigenvalues, and percentage of variance accounted for by each factor.

Factors were given general names relevant to their item content. As seen in Tables 7 and 8, Factor I (Basic Interpersonal Skills) contained both positive and negative

Table 7. Item Content, Factor Loadings, Eigenvalues, and Percent Variance Accounted for by Each Factor of MOSS A.

| | Factors | |
|---|---|---|
| Item Content | I | II |
| Does mean things to people* | .630 | |
| Has acceptable appearance/hygiene | .312 | |
| Returns borrowed property | .505 | |
| Pouts/sulks when doesn't get way* | .687 | |
| Touches others inappropriately* | .443 | |
| Makes negative statements about self* | .549 | |
| Demonstrates good manners | .476 | |
| Argues with others* | .777 | |
| Bosses/tells others what to do* | .624 | |
| Keeps confidences/secrets | .530 | |
| Brags/boasts about self* | .582 | |
| Becomes angry with little provocation* | .692 | |
| Tattles* | .731 | |
| Insults/says nasty things* | .740 | |
| Performs strange behaviors* | .310 | |
| Swears/curses* | .619 | |
| Remains calm/walks away from conflict | .620 | |
| Terminates social interactions | | .675 |
| Asks permission to join activities | | .678 |
| Is friendly to peers | | .574 |

(table con'd.)

| | Factors | |
|---|---|---|
| Item Content | I | II |
| Listens when others are speaking | | .425 |
| Appropriately accepts compliments | | .633 |
| Smiles & laughs at appropriate times | | .524 |
| Complies with transition requests | | .465 |
| Makes relevant comments | | .678 |
| Expresses empathy | | .751 |
| Requests/accepts help | | .437 |
| Takes turns with others | | .467 |
| Engages in small talk | | .701 |
| Invites others to join activities | | .710 |
| Reciprocates | | .576 |
| Eigenvalues | 9.20 | 3.34 |
| Percent Variance | 29.7 | 10.8 |

Note: *These items were reverse scored (Factor I = Basic Interpersonal Skills, Factor II = Friendliness).

Table 8. Item Content, Factor Loadings, Eigenvalues, and Percent Variance Accounted for by Each Factor of MOSS B.

| | Factors | |
|---|---|---|
| Item Content | I | II |
| Says unpleasant things* | .543 | |
| Says things that embarrass others* | .683 | |
| Annoys/disturbs others with noises* | .590 | |
| Accepts criticism appropriately | .607 | |
| Damages/destroys other's property* | .502 | |
| Follows facility rules | .603 | |
| Gripes, whines, or complains* | .686 | |
| Cooperates/works easily with others | .654 | |
| Cleans up after self | .396 | |
| Verbally threatens others* | .700 | |
| Ridicules, teases, or makes fun* | .544 | |
| Takes things without permission* | .487 | |
| Lies* | .599 | |
| Behaves aggressively* | .575 | |
| Behavior is unpredictable* | .667 | |
| Yells/screams* | .648 | |
| Complies with requests | .625 | |
| Sits/stands appropriate distance | .464 | |
| Fidgets/squirms* | .513 | |
| Makes unreasonable requests/demands* | .663 | |

(table con'd.)

| Item Content | Factors I | II |
|---|---|---|
| Blames others for problems* | .754 | |
| Frowns, scowls, or grimaces at others* | .510 | |
| Seeks unnecessary attention/help* | .616 | |
| Interrupts others* | .652 | |
| Accurately & promptly completes tasks | .474 | |
| Praises/gives compliments | | .749 |
| Greets others appropriately | | .622 |
| Invites friend(s) to visit | | .628 |
| Negotiates to resolve conflicts | | .572 |
| Remains calm & congratulates winner | | .472 |
| Is friendly to different people | | .443 |
| Is polite & uses social amenities | | .622 |
| Offers/gives assistance to others | | .675 |
| Initiates conversations | | .665 |
| Shows appropriate physical affection | | .534 |
| Shares possessions with peers | | .537 |
| Apologizes for mistakes | | .648 |
| Eigenvalues | 11.33 | 3.54 |
| Percent Variance | 30.6 | 9.6 |

Note: *These items were reverse scored (Factor I = Basic Interpersonal Skills, Factor II = Friendliness).

behaviors whose presence or absence, respectively, could be considered adequate for interpersonal interactions. This factor accounted for 29.7% of the variance in Form A and 30.6% of the variance in Form B. Factor II (Friendliness) was characterized by prosocial, extroverted behaviors. Factor II accounted for 10.8% of the variance inorm A and 9.6% of the variance in Form B.

CONCURRENT VALIDITY

The concurrent validity of the MOSS total scores was evaluated using a subsample of subjects (n = 39). For each of the three agency samples, a Qualified Mental Retardation Professional was asked to rank order the subjects in her/his agency from most to least socially skilled based on her/his definition of social skills. This procedure is an approximation of sociometric rating procedures, which have been used by others to assess concurrent validity (e.g., Matson, et al., 1983; Merluzzi & Biever, 1987; Van Hasselt, et al., 1981). The least socially skilled subject was assigned a score of 1, the next subject was assigned a score of 2, and so on, such that the highest ranking was given to the subjects considered to be most socially skilled. These scores were compared to the subjects' total scores and total factor scores on the MOSS using Spearman rank-order correlation coefficients. For Forms A ($r$ = .39, $p$ = .007) and B ($r$ = .36, $p$ = .012) and Forms A and B combined ($r$ = .39, $p$ = .007), correlations between

subjects' total scores on the MOSS and their scores on sociometric ratings were in the adequate range. Correlations between subjects' scores on sociometric ratings and Factor I scores were not significant for Form A ($r$ = .07, p = .33), Form B ($r$ = .07, p = .34), or Forms A and B combined ($r$ = .07, p = .34). However, correlations between Factor II scores on the MOSS and the subjects' scores on sociometric ratings were in the moderate range and significant. Correlations obtained were .53 (p = .001) for Form A, .63 (p = .0001) for Form B, and .59 (p = .0001) for Forms A and B combined.

## DISCUSSION

In the present study, the Measure of Observable Social Skills (MOSS) was developed and initial psychometric properties were examined. Initial items for the MOSS were derived by examining a variety of social skills questionnaires, rating scales, and checklists, as well as reviewing the literature on assessment and treatment of social skills in normal and developmentally disabled populations. Items were reviewed by individuals familiar with behavioral observation and mentally retarded adults and revised based on their feedback. This methodology differs from existing social skills measures for mentally retarded adults, which were assembled on the basis of face validity or developed for other populations and adapted to mentally retarded individuals (i.e., ASC: Meyer, et al., 1990; SPSS: Matson, Helsel, Bellack, & Senatore, 1983; VPBI: LaGreca, et al., 1982). However, similar to other social skills behavioral rating scales, a Likert-type response format was utilized (Lowe & Cautela, 1978; Matson, Rotatori, & Helsel, 1983).

In the second phase of the study, the reliability of the scale was determined, since establishing the reliability of a scale is a necessary precursor to widespread use of any instrument (Crocker & Algina, 1986; Novick, 1985). Item-total correlations for Form A and Form B ranged from adequate to high for all items, except for 8

items with correlations under .30, which were subsequently deleted from the scale. Coefficient alpha and split-half reliabilities were very high, suggesting the MOSS has good internal consistency. While test-retest reliability was high, interrater reliability was only moderate.

Several potential reasons exist for the lower interrater reliability scores. First, semi-quantitative terms, such as "frequently" and "occasionally" may be interpreted differently by various raters (Bellack, 1979a; Bellack, 1979b; Matson & Ollendick, 1988). Second, the perception of the rater in regards to the severity of the behavior may influence ratings. A behavior reported to occur frequently by one caregiver because it is particularly bothersome to him/her may be reported to occur only occasionally by another caregiver who is not disturbed by that specific behavior. Finally, the adequacy of a behavior may be interpreted differently. For example, the item "cleans up after himself/herself" may be rated as "never" by a rater who translates that as putting items in their place, dusting the furniture, vacuuming the room, but rated as "usually" by another rater who interprets that as putting items in their place. Thus, interrater reliability is expected to be somewhat lower than test-retest reliability on a Likert-type scale.

The next phase in evaluating the psychometric properties of the MOSS was to conduct preliminary validity

studies. An exploratory factor analysis revealed the presence of two factors. The first factor (Basic Interpersonal Skills) consisted of positive and negative social behaviors. Review of the items that assembled this factor suggests that the presence or absence of these behaviors may be the minimal standard necessary to be accepted by peers or caregivers (i.e., has acceptable appearance/hygiene, does not insult others). However, the second factor (Friendliness) is composed of more advanced prosocial behaviors (e.g., invites friend to visit or go somewhere with him/her, negotiates to resolve conflicts).

This conceptualization corresponds to existing sociometric research that has been conducted with children. Researchers have proposed various social status groups (e.g., popular, average, neglected, controversial, rejected) based on sociometric rating scores (Asher, 1983; Coie, Dodge, & Coppotelli, 1982; Peery, 1979). Typically, popular children are described as friendly and receive many positive ratings, while rejected children are characterized by inappropriate behaviors and obtain many negative ratings. Average and neglected children usually receive ratings near the mean, while controversial children receive ratings at both positive and negative extremes.

Applying this model of classification may be useful in interpreting the MOSS's factor scores. If Factor I measures necessary, but not superior, social behaviors, a

person who has a high score on Factor I might be considered average. However, a person who obtains high scores on both Factors I and II might be considered popular. A person scoring low on both Factors I and II might be considered rejected, while a person scoring low on Factor I and high on Factor II might be considered controversial.

Some evidence for this conceptualization was found in the concurrent validity aspect of this study. Independent raters were asked to rank a subsample of subjects from least to most socially skilled based on their definition of social skills. MOSS total scores correlated only adequately with these sociometric ratings ($r$ = .39 for Form A, $r$ = .36 for Form B). Verbal comments by the raters after completion of the ratings indicated that raters concentrated on gregarious behaviors in making these ratings. This assumption was supported when the total factor scores were separately correlated with sociometric ratings. While sociometric ratings were not significantly correlated with Factor I scores, they were significantly correlated with Factor II scores ($p$ = .001). These preliminary findings suggest that Factor II measures some aspects of friendliness on the high end of the prosocial continuum.

Obviously, additional research must be conducted to further test these hypotheses. Future research in this area should concentrate on collection of more validity

data. A convergent validity study comparing MOSS ratings, sociometric ratings, and direct observations would be helpful in determining whether the MOSS, in fact, could be used to classify mentally retarded adults into social status groups. A discriminant analysis could be conducted to determine the ability of the MOSS factor scores to classify subjects in the same social status groups indicated by sociometric ratings. Further, discriminant validity data could be obtained by correlating the subjects' MOSS scores with their scores on maladaptive behavior subscales from adaptive behavior measures. If the MOSS discriminates between low and high socially skilled individuals, low correlations between these scores would be expected.

Determining the usefulness of the MOSS in classifying individuals into social status groups or in differentiating between poorly and highly socially skilled groups is an important and necessary task. Individuals who have poor social skills are at greater risk for mental health and behavioral problems, than those who possess adequate social skills (Bellack & Mueser, 1993; Volling, MacKinnon-Lewis, Rabiner, & Barandaran, 1993). A social skills screening measure, such as the MOSS, would be a valuable tool to aid in identifying those individuals who should be targeted for interventions, as well as the domains in which those individuals need training. The MOSS would also be a

practical method of evaluating treatment outcomes, particularly assessing whether training specific skills generalizes to more general social behaviors.

The MOSS is also advantageous because it allows social skills to be assessed in a wide variety of settings. Social skills are observable behaviors, which may vary according to the circumstances (McFall, 1982). An individual may demonstrate adequate social skills in one situation, but behave poorly in a different situation. Such displays would suggest that s/he possesses the necessary repertoire of behaviors, but does not access those behaviors at appropriate times. In these cases, collecting data on an individual in various settings may render useful information for planning treatment.

In addition to examining the differences in social behaviors under varying environmental conditions, the social context in which the individual is evaluated is also an important consideration. Behaviors that are acceptable in one setting may not be tolerated in another setting. To explore these limits, individuals who are functioning in less restrictive community settings (e.g., semi-independent living, community employment) should be compared to those performing in more confined settings (e.g., group home, sheltered workshop).

To speculate, one might expect that individuals performing in the community would exhibit more socially

skilled behavior and, thus, score higher on the MOSS than would those individuals in more restricted settings. An equally plausible supposition is that individuals working in the community may be rated lower by caregivers than individuals in sheltered employment, because the expectations in the community are higher than those in the workshop. A third possibility is that a subset of social behaviors, rather than exemplary skills, may be critical for successful community adjustment (e.g., is not aggressive, does not damage or destroy others' property). These behaviors could be identified by establishing prevalence rates for each behavior and correlating these rates with residential or vocational placement. The number of subjects residing or working in the community was very low in this sample, so additional ratings with these individuals must be obtained before conclusions can be drawn about these issues.

Several other investigations are suggested from the present study. Generalizability of the current results are limited to the geographic area of northern and central Indiana, so a large scale study expanding data collection to other states might be useful. In addition, the range of subjects and raters should be expanded. The current study contains a fairly homogeneous group, with most subjects being Caucasian, verbal, ambulatory, and sheltered workshop employees. Collecting data on subjects with lower mental

and physical abilities, such as institutionalized, nonverbal, nonambulatory, deaf, or blind individuals, as well as other races and ages (e.g., adolescent, over 55 years) would enhance the generalizability of the MOSS. Likewise, most of the raters were group home or workshop caregivers. Increasing the number of legal guardian ratings may provide useful information, because guardians are not likely to have the reference group that group home or workshop caregivers access. Reliability of guardian ratings should be analyzed to determine their comparability to ratings by other caregivers.

Administration of the MOSS could also be varied to explore the limits of reliability. First, the current MOSS forms should be combined into one 68-item scale, since reliability was higher when the forms were combined. A confirmatory factor analysis could be conducted on the single form to test the stability of the original factor solution when additional subjects are available. Second, a large group of caregivers, similar to those utilized in the current study, should read and complete the measure themselves. The reliability of MOSS scores obtained in this manner should be compared with those obtained in the present study to determine whether reliability remains high. This endeavor is worthwhile because self-administration of the MOSS would be more practical than the administration procedures utilized in the present study,

which required extensive experimenter time. The Right Writer computer program recommended a seventh-eighth grade level for completing the MOSS, suggesting its completion should not be difficult for typical direct care staff who are required to have a twelfth grade education. During the present study, caregivers did not appear to have difficulty understanding the items read to them, and several raters asked why they could not complete the measures themselves.

Finally, if the psychometric properties of the MOSS are upheld, normative data should be obtained. Normative data would allow researchers/practitioners to select subjects/clients on an empirical rather than arbitrary basis. Norms would also allow evaluation of whether changes in social functioning after treatment are adequate. As mentioned earlier, several researchers have recommended that social competence be included in the definition of mental retardation (Greenspan, 1981; Gresham, 1986a; Gresham & Elliott, 1987; Senatore, et al., 1982; Siperstein, 1992). If such a proposal were executed, a standardized measure with normative data would be necessary to evaluate social competence.

In closing, the utility of the MOSS as a viable instrument for assessing social skills in mentally retarded individuals is suggested by the present data. The MOSS was specifically designed for the assessment of social skills in mild to moderate mentally retarded adults, making it

more suitable than existing behavioral checklists. The present study has shown that the MOSS possesses high reliability and internal consistency, as well as initial validity. With further evidence of psychometric properties (convergent validity, discriminant validity), the MOSS would fulfill the need for a standardized social skills measure to identify individuals who have social skills problems, assess areas in which those individuals need training, determine the effects of social skills interventions, and develop normative data.

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APPENDIX A

## MOSS (Form A)

**DIRECTIONS:**

**This survey is a measure of social behavior. Please listen as I read each item and rate how often the client has exhibited the behavior in the past six weeks. Examples are provided on some items for clarification, but do not necessarily cover all situations in which that behavior may occur. Be sure to rate how often each behavior is done, not what you think a good answer would be.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Terminates social interactions appropriately (for example: says "good-bye" or "see you later"). | Never | Occasionally | Half the time | Frequently | Usually |
| 2. | Does mean things to people (for example: hides others' property). | Never | Occasionally | Half the time | Frequently | Usually |
| 3. | Talks about the same topics over and over. | Never | Occasionally | Half the time | Frequently | Usually |
| 4. | Has acceptable appearance and hygiene (for example: dresses appropriately, hair is neat and clean). | Never | Occasionally | Half the time | Frequently | Usually |
| 5. | Asks permission to join ongoing activities; does not just butt in without asking (for example, asks "Can I play, too?" or "Can I help you do that?") | Never | Occasionally | Half the time | Frequently | Usually |
| 6. | Cries without apparent reason to get attention from others. | Never | Occasionally | Half the time | Frequently | Usually |
| 7. | Gives gifts to others on special occasions. | Never | Occasionally | Half the time | Frequently | Usually |
| 8. | Solicits money, food, or other items from others. | Never | Occasionally | Half the time | Frequently | Usually |
| 9. | Talks continuously; never seems to be quiet. | Never | Occasionally | Half the time | Frequently | Usually |
| 10. | Returns borrowed property to owner in same condition. | Never | Occasionally | Half the time | Frequently | Usually |
| 11. | Pouts or sulks when he/she doesn't get his/her way. | Never | Occasionally | Half the time | Frequently | Usually |
| 12. | Interacts with peers in a friendly manner. | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13. | Touches others inappropriately (for example: hugs everyone, gropes others, or touches other's breasts or genitals in public). | Never | Occasionally | Half the time | Frequently | Usually |
| 14. | Verbally communicates needs and wants. | Never | Occasionally | Half the time | Frequently | Usually |
| 15. | Makes negative statements about self (for example: says "no one likes me", "people pick on me", or "I'm ugly".) | Never | Occasionally | Half the time | Frequently | Usually |
| 16. | Demonstrates good manners (for example: doesn't talk with mouth full, eats with utensils when appropriate, puts appropriate amounts of food in mouth). | Never | Occasionally | Half the time | Frequently | Usually |
| 17. | Spends time alone, isolated from others. | Never | Occasionally | Half the time | Frequently | Usually |
| 18. | Argues with others. | Never | Occasionally | Half the time | Frequently | Usually |
| 19. | Positively stands up for self or friends; is assertive when appropriate. | Never | Occasionally | Half the time | Frequently | Usually |
| 20. | Refers to familiar people by name. | Never | Occasionally | Half the time | Frequently | Usually |
| 21 | Communicates needs and wants with gestures or signs. | Never | Occasionally | Half the time | Frequently | Usually |
| 22. | Listens when others are speaking. | Never | Occasionally | Half the time | Frequently | Usually |
| 23. | Bosses or tells others what to do. | Never | Occasionally | Half the time | Frequently | Usually |
| 24. | Introduces self or others when he/she meets new people. | Never | Occasionally | Half the time | Frequently | Usually |
| 25. | Appropriately accepts compliments or praise (for example: says "thank you"). | Never | Occasionally | Half the time | Frequently | Usually |
| 26. | Keeps confidences/secrets; does not tell what people have asked him/her not to tell. | Never | Occasionally | Half the time | Frequently | Usually |
| 27. | Brags or boasts about self (for example: says "I work faster than her" or "I am good-looking"). | Never | Occasionally | Half the time | Frequently | Usually |
| 28. | Is late or absent for work and other appointments. | Never | Occasionally | Half the time | Frequently | Usually |
| 29. | Flinches or moves away when touched by others. | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 30. | Smiles and laughs at appropriate times. | Never | Occasionally | Half the time | Frequently | Usually |
| 31. | Complies with requests to change from one activity to another. | Never | Occasionally | Half the time | Frequently | Usually |
| 32. | Becomes angry with little or no clear provocation. | Never | Occasionally | Half the time | Frequently | Usually |
| 33. | Tattles or tries to get others in trouble. | Never | Occasionally | Half the time | Frequently | Usually |
| 34. | Makes relevant comments to conversation or questions asked. | Never | Occasionally | Half the time | Frequently | Usually |
| 35. | Expresses empathy for peers or caretakers when they are sad or upset (for example: hugs them or tells them he/she is sorry for them). | Never | Occasionally | Half the time | Frequently | Usually |
| 36. | Speaking voice is appropriate volume; not too loud or too soft. | Never | Occasionally | Half the time | Frequently | Usually |
| 37. | Insults/says nasty things to peers or caretakers (for example: calls names or criticizes). | Never | Occasionally | Half the time | Frequently | Usually |
| 38. | Requests or accepts help when needed. | Never | Occasionally | Half the time | Frequently | Usually |
| 39. | Stares at others; looks at/watches others for long periods of time without speaking. | Never | Occasionally | Half the time | Frequently | Usually |
| 40. | Performs strange behaviors in the presence of others (for example: grinds teeth, rocks, or flaps hands). | Never | Occasionally | Half the time | Frequently | Usually |
| 41. | Takes turns with others (for example: allows others to go first sometimes, waits his/her time when playing a game, or allows another to ride in front seat of car/van). | Never | Occasionally | Half the time | Frequently | Usually |
| 42. | Swears/curses. | Never | Occasionally | Half the time | Frequently | Usually |
| 43. | Engages in small talk; talks about things that are not personal in nature like the weather. | Never | Occasionally | Half the time | Frequently | Usually |
| 44. | Remains calm or walks away when someone teases him/her or tries to engage him/her in conflict. | Never | Occasionally | Half the time | Frequently | Usually |
| 45. | Invites others to join activities or groups. | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 46. | Reciprocates by doing things for people who have done nice things for him/her. | Never | Occasionally | Half the time | Frequently | Usually |
| 47. | Exhibits inappropriate sexual behavior in public (for example: masturbates or touches his/her genitals). | Never | Occasionally | Half the time | Frequently | Usually |

# MOSS (Form B)

**DIRECTIONS:**

**This survey is a measure of social behavior. Please listen as I read each item and rate how often the client has exhibited the behavior in the past six weeks. Examples are provided on some items for clarification, but do not necessarily cover all situations in which that behavior may occur. Be sure to rate how often each behavior is done, not what you think a good answer would be.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Praises or gives compliments to peers (for example: says "you look nice" or "nice job"). | Never | Occasionally | Half the time | Frequently | Usually |
| 2 | Indicates preferences when presented with a choice (for example: says "I would like" or "this is good", rather than saying "I don't know"). | Never | Occasionally | Half the time | Frequently | Usually |
| 3 | States that unpleasant things are going to happen to him/her or others ( for example: says "I'm/you're going to lose the game" or "I'm/you're going to be sick"). | Never | Occasionally | Half the time | Frequently | Usually |
| 4. | Says things that embarrass others or make them feel uncomfortable (for example: says "you're fat", "you can't read", or "Do you have sex?"). | Never | Occasionally | Half the time | Frequently | Usually |
| 5. | Annoys or disturbs others with loud noises (for example: taps fingers or burps loudly, which results in being told by others to "quit" or "stop"). | Never | Occasionally | Half the time | Frequently | Usually |
| 6. | Accepts criticism appropriately (for example: remains calm, doesn't pout or become angry when corrected). | Never | Occasionally | Half the time | Frequently | Usually |
| 7. | Tells jokes to make others laugh. | Never | Occasionally | Half the time | Frequently | Usually |
| 8. | Participates in group recreational activities/leisure activities (for example: parties, Special Olympics, bowling). | Never | Occasionally | Half the time | Frequently | Usually |
| 9. | Greets others appropriately (for example: says "hello", waves, or shakes hands). | Never | Occasionally | Half the time | Frequently | Usually |
| 10. | Invites friend(s) to come visit or go somewhere with him/her (for example: asks friend to go to a movie). | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11. | Damages or destroys others' property (for example: breaks/throws items of others, tears up others' magazines). | Never | Occasionally | Half the time | Frequently | Usually |
| 12. | Harms self while in the presence of others (for example: bites self, bangs head, or scratches self). | Never | Occasionally | Half the time | Frequently | Usually |
| 13. | Negotiates or compromises to resolve conflicts with others. | Never | Occasionally | Half the time | Frequently | Usually |
| 14. | Repeats certain words or phrases over and over again, sounding like a broken record. | Never | Occasionally | Half the time | Frequently | Usually |
| 15. | Is easily distracted from conversations or tasks. | Never | Occasionally | Half the time | Frequently | Usually |
| 16. | Remains calm and congratulates winner after losing a game. | Never | Occasionally | Half the time | Frequently | Usually |
| 17 | Follows facility rules (for example: doesn't run inside building, doesn't leave without permission, or smokes only in designated areas). | Never | Occasionally | Half the time | Frequently | Usually |
| 18. | Speaks clearly so he/she is easily understood; has good articulation. | Never | Occasionally | Half the time | Frequently | Usually |
| 19. | Gripes, whines, or complains. | Never | Occasionally | Half the time | Frequently | Usually |
| 20. | Looks at/makes eye contact with individuals with whom he/she is talking. | Never | Occasionally | Half the time | Frequently | Usually |
| 21. | Interacts in a friendly manner with people who have different characteristics (race, handicaps) from him/her. | Never | Occasionally | Half the time | Frequently | Usually |
| 22. | Cooperates/works easily with peers or caretakers. | Never | Occasionally | Half the time | Frequently | Usually |
| 23. | Is polite and uses social amenities (for example: says "please", "thank you", or "excuse me"). | Never | Occasionally | Half the time | Frequently | Usually |
| 24. | Cleans up after himself/herself. | Never | Occasionally | Half the time | Frequently | Usually |
| 25. | Verbally threatens others (for example: says "I'm going to hit you" or "I'm going to tell on you"). | Never | Occasionally | Half the time | Frequently | Usually |
| 26 | Ridicules, teases, or makes fun of others. | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 27. | Offers or gives assistance to peers or caretakers. | Never | Occasionally | Half the time | Frequently | Usually |
| 28. | Takes things from others without permission. | Never | Occasionally | Half the time | Frequently | Usually |
| 29. | Initiates conversations with others. | Never | Occasionally | Half the time | Frequently | Usually |
| 30. | Lies; says things that are untrue. | Never | Occasionally | Half the time | Frequently | Usually |
| 31. | Behaves aggressively towards others (for example: hits, slaps, kicks, pushes, spits, pulls hair, scratches, pinches, or bites). | Never | Occasionally | Half the time | Frequently | Usually |
| 32. | Behavior towards others is unpredictable (for example: he/she is moody, may be nice one day and nasty the next day). | Never | Occasionally | Half the time | Frequently | Usually |
| 33. | Yells/screams. | Never | Occasionally | Half the time | Frequently | Usually |
| 34. | Complies with requests and follows instructions. | Never | Occasionally | Half the time | Frequently | Usually |
| 35. | Sits or stands an appropriate distance (at least 2 feet) from others; does not invade others' personal space. | Never | Occasionally | Half the time | Frequently | Usually |
| 36. | Shows appropriate physical affection to familiar people (for example: pats on back or hugs). | Never | Occasionally | Half the time | Frequently | Usually |
| 37. | Shares his/her possessions with peers. | Never | Occasionally | Half the time | Frequently | Usually |
| 38. | Speaks at an appropriate rate; not too fast or too slow. | Never | Occasionally | Half the time | Frequently | Usually |
| 39. | Fidgets or squirms; does not sit or stand still. | Never | Occasionally | Half the time | Frequently | Usually |
| 40. | Makes requests/demands that are unreasonable (for example: requests to be paid $1000 dollars or wants pizza for dinner every night). | Never | Occasionally | Half the time | Frequently | Usually |
| 41. | Blames others for his/her problems (for example: says "see what you made me do" or "it was his fault".). | Never | Occasionally | Half the time | Frequently | Usually |
| 42. | Allows others to take advantage of him/her by taking his/her food, clothes, or other items. | Never | Occasionally | Half the time | Frequently | Usually |
| 43. | Apologizes for mistakes. | Never | Occasionally | Half the time | Frequently | Usually |

| | | | | | | |
|---|---|---|---|---|---|---|
| 44. | Frowns, scowls, or grimaces at others. | Never | Occasionally | Half the time | Frequently | Usually |
| 45 | Seeks unnecessary attention or help from others (for example: asks for help on tasks he/she can do alone or often says "watch me do this"). | Never | Occasionally | Half the time | Frequently | Usually |
| 46. | Interrupts others while they are talking. | Never | Occasionally | Half the time | Frequently | Usually |
| 47. | Accurately and promptly completes tasks, such as chores or work. | Never | Occasionally | Half the time | Frequently | Usually |

APPENDIX B

## MEASURE OF OBSERVABLE SOCIAL SKILLS
(For adults with mild-moderate mental retardation)

Before beginning, please complete the information and questions below:

Client's Name _____ Date _____

Rater's Name _____

Relationship to Client _____

1. How long have you known the client you are rating?

   ____ 1 to 6 months ____ 6 months to 1 year

   ____ 1 to 2 years ____ 2 to 5 years

   ____ more than 5 years

2. How much contact do you have with this person on a daily basis?

   ____ 0-2 hours ____ 2-4 hours ____ 4-8 hours

   ____ 8-12 hours ____ 12-24 hours

3. In what setting does most of the contact take place?

   ____ Sheltered workshop ____ Supported employment

   ____ Residential setting ____ Treatment/consultation

   ____ Other: _____

4. What is the ratio of mentally retarded clients to caretakers in this setting?

   ____ 1 client to more than 1 caretaker

   ____ 1 client to 1 caretaker

   ____ 2-5 clients to 1 caretaker

   ____ 6-10 clients to 1 caretaker

   ____ More than 10 clients to 1 caretaker

5. How long has the client been in this setting? _____

APPENDIX C

## MOSS Background Information Sheet

Client's Name: _____ Rater: _____

Date of Birth: _____ Age: _____ Sex: M F

Race: White Black Hispanic Other

Level of Mental Retardation: Mild Moderate Severe

IQ Test Score: _____ IQ Test Used: _____

Ad. Bx. Score: _____ Ad. Bx. Scale Used: _____

Other Diagnoses: _____

Physical Disabilities:

- Some visual limitations
- Some hearing limitations
- Epileptic/Seizure Disorder
- Confined to bed or wheelchair
- Cerebral Palsy
- Other _____
- None

Medical/Organic Cause of MR:

- Down's Syndrome
- Other Chromosomal/Genetic Cause _____
- Infection (e.g., meningitis or encephalitis)
- Injury or head trauma
- Birth trauma (e.g., oxygen deficiency)
- Other _____
- No known cause

Client is:

| | |
|---|---|
| Ambulatory | Nonambulatory |
| Verbal | Nonverbal |

Current Living Situation:

Semi-Independent Living
Group Home
Family home
Institution
Other _____

Current Day Program (circle all that apply):

Supported Employment
Sheltered Workshop
School/Classes
Daycare Center
Other _____

Informant's Relationship to Client:

Parent
Teacher
Caretaker/paraprofessional
Medical professional

Does client take medication regularly? yes no

If so, list: _____
_____
_____
_____

Is client currently on a behavior management plan? yes no

If so, list target behaviors: _____
_____
_____
_____

## APPENDIX D

## SUBJECT PERMISSION

I hereby give permission for caregivers to rate _____ _____ on a social skills measure, as part
(myself / my dependent)
of a research project being conducted by Debra Farrar-Schneider, M.A., at Louisiana State University under the supervision of Johnny L. Matson, Ph.D. I further give permission for her to collect background information, such as prior assessment results from my/my dependents files. I understand that all of the information collected will be kept strictly confidential, as group averages rather than individual names and scores will be reported. I realize that I may refuse to participate or withdraw from the research at any time.

Signature _____ Date _____
Client / Guardian

*Note: Any problems or questions regarding this study may be directed to Debra Farrar-Schneider, M.A., at 219-462-6691 on weekdays between 8 a.m.-9 p.m.

# AGENCY PERMISSION

The agency or individual listed below gives permission Debra Farrar-Schneider, M.A., to solicit clients within this agency for a social skills research project being conducted at Louisiana State University under the supervision of Johnny L. Matson, Ph.D. It is understood that individual consent must be obtained from each client who agrees to participate. This agency or any individual may refuse to participate or withdraw from the research at any time.

Agency _____

Address _____

Signature of Agency Official _____

Date _____

*Note: Any problems or questions regarding this study may be directed to Debra Farrar-Schneider, M.A., at 219-462-6691 on weekdays between 8 a.m.-9 p.m.

# RATER PERMISSION

_____ has consented to participate in a study being conducted by Debra Farrar-Schneider, M.A., at Louisiana State University under the supervision of Johnny L. Matson, Ph.D. The purpose of this study is to investigate social skills in mentally retarded adults. As part of the study, this individual has given permission for you to rate him/her. You are under no obligation to participate and may withdraw at any time, but your cooperation would be greatly appreciated. You may consent to participate by signing below.

Signature of Rater _____

Date _____

*Note: Any problems or questions regarding this study may be directed to Debra Farrar-Schneider, M.A., at 219-462-6691 on weekdays between 8 a.m.-9 p.m.

# VITA

Debra Farrar-Schneider was born and raised in Mississippi. She received a Bachelor's Degree in psychology at Millsaps College in 1986 and a Master's Degree in psychology at Louisiana State University in 1990. She completed her doctoral internship at Johns Hopkins Hospital in 1994. She will be awarded her Ph.D. in psychology in December 1995. She has worked with mentally retarded individuals for 8 years and is currently employed as a behavior management specialist for developmentally disabled children and adults. Debra currently resides in Indiana with her husband, Bobby, and her daughter, Ashleigh. Her favorite pastimes are playing with Ashleigh, reading, cross-stitching, and snow skiing.

# DOCTORAL EXAMINATION AND DISSERTATION REPORT

**Candidate:** Debra Farrar-Schneider

**Major Field:** Psychology

**Title of Dissertation:** A Social Skills Measure for Adults with Mild or Moderate Mental Retardation: Development of the Measure of Observable Social Skills (MOSS)

**Approved:**

Major Professor and Chairman

Dean of the Graduate School

**EXAMINING COMMITTEE:**

**Date of Examination:**

10/23/95